NEW ZEALAND AMATEUR RADIO

CALLBOOK

AND RADIO REFERENCE

2002/2003

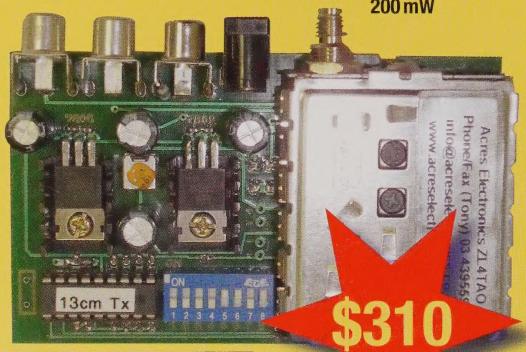
NEW ZEALAND ASSOCIATION OF RADIO TRANSMITTERS INC

ACRES ELECTRONICS — ZL4TAO

Welcome to Acres Electronics— ZL4TAO.
Your one-stop shop for 23 cm, 13 cm and ISM band transmitters, receivers and accessories.

ATV Transmitters

2.4 GHz (13 cm) 200 mW



$310

1.2 GHz (23 cm) or 2.4 GHz (13 cm) 50 mW 30 mW

- Fully synthesized
- Wide transmit/receive frequency range
- 1v Pk to Pk video in
- Two audio sub-carriers
- Line level audio in
- Plug and play operation

$130

ATV Receiver

1.2 GHz (23 cm) and ENG 2.4 GHz (13 cm)

$145

2.4 GHz 15 dB gain antenna
340 mm × 390 mm

For the 2.4 GHz modules we present our small 15 dB gain antenna, one of these at each end will greatly increase the distance of the video link.

$145

2.4 GHz 24 dB gain antenna
830 mm × 670 mm

$160

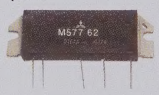
Combined with our 2.4 GHz transmitters and receivers these aerials have been successfully tested in New Zealand over path lengths of up to 81 km.

De-emphasis/ video amplifier
Use this to add de-emphasis to our Rx modules.

$36

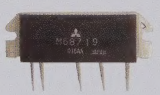
Pre-emphasis/ video amplifier
Use this to add pre-emphasis to our Tx modules.

$54



Mitsubishi M57762 RF Module
This module will give 18 W out at 1.2 GHz. Requires 1 W drive.

$199

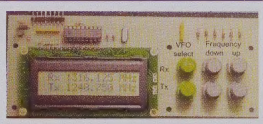


Mitsubishi M68719 RF Module
This module will give 18 W out when driven directly by our 1.2 GHz Tx.

$197

Exclusive to Acres Electronics, this 1.2 GHz (23 cm) Yagi features a 14.86 dBi gain and wide bandwidth

$165



LCD Rx and Tx Controller

- Clear LCD shows Tx and Rx frequency
- Two Tx and Rx non-volatile VFOs
- Only three wires to Rx and three wires to Tx
- Can auto-tune Rx to Tx frequency
- Pushbutton freq. control, varispeed
- Extended Rx frequency range
- 125 kHz Tx/Rx frequency steps
- 2.4 GHz (13 cm) and 1.2 Ghz (23 cm) versions available

$146

- Similar to RG402
- Semi-rigid
- Good to 20 GHz

$14 per metre

2.4 GHz (13 cm) rubber duckie aerial for shorter range omnidirectional coverage.

$27

124 Dasher Road, 13 DRD, Oamaru, New Zealand
Telephone/Fax (03) 439-5597. www.acreselectronics.co.nz info@acreselectronics.co.nz

All prices are in NZ dollars, GST Free and subject to change during the duration of this Call Book

2002/2003 NEW ZEALAND AMATEUR RADIO CALL BOOK AND RADIO REFERENCE

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The Amateur's Code

1 ***The Amateur is Considerate ...***
never knowingly using the air in such a way as to lessen the pleasure of others.

2 ***The Amateur is Loyal ...***
offering loyalty, encouragement and support to fellow radio amateurs, local clubs and to the New Zealand Association of Radio Transmitters, through which Amateur Radio is represented in New Zealand.

3 ***The Amateur is Progressive ...***
keeping his or her station abreast of science. It is well-built and efficient. His or her operating practice is above reproach.

4 ***The Amateur is Friendly ...***
slow and patient sending when requested, friendly advice and counsel to the beginner, kindly assistance, co-operation and consideration of the interests of others; these are the marks of the amateur spirit.

5 ***The Amateur is Balanced ...***
radio is a hobby. It is never allowed to interfere with any of the duties owing to home, job, school, or community.

6 ***The Amateur is Patriotic ...***
with knowledge and station always ready for the service of country and community.

—PAUL M. SEGAL
ex-W3EEA, W9EEA
(Amended by the Editor)

AMATEUR RADIO

What is Amateur Radio?

Amateur Radio, also affectionately known as "ham radio", is a hobby of constructing, experimenting and communicating. In New Zealand hams are licensed by the Ministry of Economic Development (Radio Spectrum Management). Once licensed, an amateur can operate radio equipment from home, from their vehicle and from anywhere in New Zealand. A number of radio frequencies have been set aside for Amateur Radio use. On these frequencies a ham can talk across town or around the world. The scope and possibilities are endless—from sending TV pictures to operating through Amateur Radio satellites.

Who can be Hams?

Just about anyone can become a ham. Some famous people such as Kings and Prime Ministers are hams, but most are just people from all walks of life who like communicating. Young people find Amateur Radio a great training ground, older people find "hamming" an absorbing retirement hobby.

In fact Amateur Radio is more than a hobby, it is a service. Hams provide their equipment and operating skills whenever the need arises—such as for Civil Defence emergencies and Search and Rescue operations.

How do I become a Ham?

Passing a ham licence is quite easy. For a limited licence correctly answer 40 of 60 questions from a multi-choice question paper. The questions cover radio theory and regulations from a public-domain question-bank. An additional test of sending and receiving Morse code at 5 words per minute is required to gain a general licence..

Where do I get more information?

The New Zealand Association of Radio Transmitters (Inc.) is a non-profit association of Amateur Radio Operators. NZART has clubs and instructors in most larger cities and towns. For more information on Amateur Radio and details of club and licensing courses near you, contact:

The Business Manager, NZART, Freepost 3565, P.O. Box 40-525, Upper Hutt.

Email: nzart@nzart.org.nz World Wide Web: http://www.nzart.org.nz

New Zealand Association of Radio Transmitters INC

(Founder Member of the International Union Region III)

Mail to: FREEPOST 3565, OFFICE MANAGER, PO BOX 40-525, UPPER HUTT 6415, NEW ZEALAND

PLEASE ENROL ME AS A NEW MEMBER AS FOLLOWS:

TRANSMITTING ☐	NON-TRANSMITTING ☐	STUDENT ☐	FAMILY ☐	OVERSEAS ☐	ASSOCIATE ☐	CONCESSIONARY ☐
$90.00	**$90.00**	**$35.00**	**$30.00** Additional Maximum **$120.00**	**$90.00**	**$90.00**	Apply Business Manager

A rebate of $10.00 will be available for early payment.

MR MS MRS MISS	INITIALS	SURNAME	CALL-SIGN
ADDRESS			PREFERRED BRANCH, NAME OR NO
			PLEASE FIND ENCLOSED $
			MY SUBSCRIPTION TO **Dec 31 2003**
OCCUPATION		DATE OF BIRTH	I agree to abide by the NZART Constitution Signature:

The information requested (other than date of birth) is for membership records required to be maintained under the Incorporated Societies' Act 1908. Date of Birth is requestd for statistical purposes only.

Membership benefits include the automatic inclusion of transmitting call-sign holders' address details in *Call Book* (published annually).

If you DO NOT wish your details published please sign below:

I DO NOT want my address details published by NZART _____

IF YOU PREFER TO PAY BY CREDIT CARD PLEASE COMPLETE

VISA ☐ MASTER CARD ☐ EXPIRY DATE

CARD No.

Signature: _____

Remember ...

Leave a three second pause between overs when working repeaters

To the Office Manager NZART
PO Box 40-525, Upper Hutt 6415

CHANGE OF ADDRESS NOTIFICATION

Name: _____ Call-sign: _____ Membership No: _____

Old Address:

_____

_____

_____

New Station Address:

_____

_____

_____ Post code: _____

Which address do you wish to appear in *Call Book*?

☐ Station ☐ Postal ☐ Both

(Please tick selection)

***Break-In* postal address (if different):**

_____

_____

_____ Post code: _____

Membership benefits include the automatic inclusion of transmitting call-sign holders address details in *Call Book* (published annually).

If you DO NOT wish your details published please sign below.

I DO NOT want my address details published by NZART _____

REMEMBER: If you change address you must notify the nearest office of the Ministry of Economic Development (Radio Spectrum Management), AND the Office Manager NZART.

Please post this form to the Office Manager NZART at the above address.

NZART

MEMBERSHIP SERVICES

New Zealand Radio Frequency Service Liaison on licencing and spectrum matters

International Representation with membership in the International Amateur Radio Union

Amateur Repeater Service co-ordination by the Frequency Management and Technical Advisory Group

Satellite Co-ordination liaison with satellite organizations worldwide

Amateur Beacon Service co-ordination by the Frequency Management and Technical Advisory Group

Satellite Support donations and fund-raising

Spectrum Bandplanning for Council by the Frequency Management and Technical Advisory Group

Public Service Involvement by the Amateur Radio Emergency Corps for Civil Defence and Search and Rescue

***Break-In* Journal** published bi-monthly six times a year

Amateur Radio *Call Book* published annually

Reciprocal Licensing advice for travellers to or from New Zealand

Publications with member discount

QSL Bureau for dispatch and collection of cards

Official Broadcast transmitted monthly

Teletext for current news and promotion

Video Tape Library for branch borrowing

Ionospheric Predictions printed bi-monthly in ***Break-In***

Slow Morse Practise for Amateur Radio Operators' Certificate

Monitoring Service to protect our bands

Contests and Awards administration; branch, national and international

Annual Conference, our national forum

VHF Convention for VHF constructors and experimenters

Technical Standards co-ordination

Third Party Insurance for NZART activities, Branches and AREC

Education and Development Group for co-ordination of Radio Training

Examination Division—organisation of Amateur Operator Certificate examinations

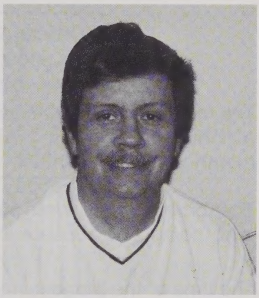
Bulletin Board Systems for up-to-date information and messages

Special Projects for funds for promoting radio in developing countries

Legal Advice on tower permits

Branch Services constitutional, legal, financial, etc.

EDITORIAL



This year with a full sized Call Book there has been the opportunity to add some new material showing that our hobby is dynamic and innovative. There are enthusiastic amateurs who are developing new technologies within Amateur Radio.

I would like to thank all contributors for their assistance in the production of this year's publication but remember items like the Branch Directory can only be as accurate as the information supplied.

Sadly we note the passing of a long-term contributor to this publication, John Gabites ZL2AQ. His contribution is as relevant now as when first published and has been reprinted in this issue as a tribute to his contribution to this hobby of ours.

Books for Radio Amateurs

We are delighted to be the official supplier for the NZART. We stock and regularly order books from the American Radio Relay League Inc, and the Radio Society of Great Britain, as well as other sources of books for the radio hobby market.

NB All prices include delivery in NZ. We accept cheques, VISA or MasterCard.

Current NZART members may **deduct 20%** from the prices listed.

from

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2002–2003 INFORMATION

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Postal: P.O. Box 40-525, Upper Hutt 6415

NZART Subscriptions

2003/2004

Annual Subscription	$90.00
Student Subscription	$35.00
Family Additional	$30.00
Maximum Family	$120.00
Overseas	$90.00

A rebate of $10.00 applies for payment prior to November 30 2002. See *Break-In* for details. Concessionary membership on application to the Business Manager

Call Book 2002/2003	$17.00
Break-In Single copy	$5.00

***Break-In* Editor:**
J. R. L. Walker ZL3IB

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Headquarters—Info-Line:
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The New Zealand Association of
Radio Transmitters Incorporated

Headquarters—Info-Line is a fortnightly bulletin of news from NZART Headquarters e-mailed directly to Branches.

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Official Broadcasts:
J. A. Meachen ZL2BHF
E-mail: zl6a@nzart.org.nz

The monthly NZART Official Broadcast is made by: ZL6A, AUCKLAND, 3900kHz LSB, on the last Sunday of each month except December, when the broadcast is made on the Sunday before Christmas.

The broadcast is also made on the National System and some VHF repeaters. A list of these can be found in *Break- In*.

The time of the broadcast is 2000 hours. A repeat broadcast is made at 2100 hours.

Members and Branches are welcome to submit material to ZL2BHF, C/- NZART Headquarters, PO Box 40-525, Upper Hutt 6415, for inclusion in the broadcasts.

Conference Official Broadcast

The Official Conference Broadcast is held on the Sunday of Queen's Birthday Weekend at 2000 hours.

National Director AREC:
Brian E. Purdie ZL2TPS
E-mail: arec@nzart.org.nz

AREC Section Leaders Net

A monthly net of all AREC Section Leaders is held on the third Monday of each month at 1930 hours. Net is conducted by the MANAGER AREC, ZL3EX on 3900kHz Upper Sideband.

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1929	R. J. Orbell	ZL1AX
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1932	D. Wilkinson	ZL2AB
1933	N. W. Laugesen	ZL3AS
1934	W. G. Collett	ZL4BP
1935	C. N. Edwards	ZL1AA
1936	W. M. Hall	ZL2BH
1937	R. B. Dodds	ZL4FK
1938	L. G. Petrie	ZL2OV
1939	F. W. Sellens	ZL2MY
1940	B. E. Jackson	ZL2FJ
1941–1942	W. Fouhy	ZL2LB
1943–1944	C. G. Liddell	ZL2BI
1945–1946	E. B. Lough	ZL2OG
1947–1949	C. G. Liddell	ZL2BI
1949–1950	J. F. Freeman	ZL2AFB
1950–1951	C. T. Berry	ZL2BY
1951–1953	W. J. Wainwright	ZL3LI
1953–1955	R. H. Hanley	ZL2GU
1955–1958	H. F. Arnold	ZL3HA
1958–1960	J. F. Freeman	ZL1VA
1960–1962	G. M. Salt	ZL1CK
1962–1964	R. T. Woodfield	ZL2VN
1964–1966	C. G. Liddell	ZL3ND
1966–1969	H. Burton	ZL2APC
1969–1970	W. R. Hamer	ZL2CD
1970–1972	D. A. Lloyd	ZL4PG
1972–1973	D. E. Cleland	ZL1IY
1973–1974	J. F. C. Johnson	ZL2AMJ
1974–1977	W. D. Gorman	ZL2IY
1977–1983	A. G. Godfrey	ZL1HV
1983–1985	D. J. Mackay	ZL3RW
1985–1991	T. D. Carrell	ZL3QL
1991–1992	T. C. King	ZL2AKW
1992–1997	J. A. Meachen	ZL2BHF
1997–2001	A. J. Wallace	ZL1AMW
2001–2003	P. Norden	ZL2SJ

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1942*	F. W. Sellens	ZL2MY	1980*	F. R. W. Andrews	ZL2IJ
1946*	W. Fouhy	ZL2LB	1982	G. C. Blackwell	ZL3NT
1947*	W. D. Gorman	ZL2IY	1983*	A. G. Godfrey	ZL1HV
1948*	T. R. Clarkson	ZL2AZ	1985	J. F. C. Johnson	ZL2AMJ
1948*	J. F. Freeman	ZL2VU	1986*	C. W. Parton	ZL3CP
1948*	G. M. Salt	ZL1CK	1987*	D. Wilkinson	ZL2AB
1949*	A. F. Leader		1989*	R. S. H. Morgan	ZL2GQ
1950*	E. L. Hall		1990	G. A. Kilpatrick	ZL1BBS
1950*	W. M. Hall	ZL2BH	1992	D. J. Mackay	ZL3RW
1953*	R. Cassey	ZL2IQ	1992	R. L. Baldwin	W1RU
1954*	J. G. Howard	ZL4FR	1996	R. W. G. Kingston	ZL4MK
1961*	J. M. White	ZL2GX	1998	R. N. Copeland	ZL2AKV
1964	H. F. Arnold	ZL3HA	2000	T. D. Carrell	ZL3QL
1966*	C. G. Liddell	ZL3ND	2000	J. A. Meachem	ZL2BHF
1972*	M. R. O. Montgomery		2002	G. E. Bold	ZL1AN

*Denotes deceased

AREC OFFICERS

AREC Officers

E. Call			Call	Home	Work	Deputy	Call	Home	Work
ZL6EX	AREC Director	Brian Purdie	ZL2TPS	(06) 329-3606	(025) 846-551	Geoff Chapman	ZL3PX	(03) 385-1815	(03) 377-8324
ZL6EE	AREC Secretary	Doug Cooke	ZL1TTE	(09) 846-6075	(09) 486-7948				
ZL1EX	Area ManagerZL1	Richard Gamble	ZL1BNQ	(09) 537-1238	(09) 272-0114	Jim Rowe	ZL1AVR	(07) 868-9193	
ZL2EX	Area ManagerZL2	Jeff Sayer	ZL2TFZ	(04) 527-9648	(04) 560-2722	Terry Waghorn	ZL2AYY	(04) 475-9761	(025) 887-271
ZL3EX	Area ManagerZL3	Stan Whitfield	ZL3AP	(03) 358-3089	(03) 364-2428	Gareth Bradshaw	ZL3VP	(03) 332-2406	(03) 363-9797
ZL4EX	Area ManagerZL4	Bill Olsen	ZL4TAB	(03) 455-7884	(025) 369-107	Bob Smith	ZL4OC	(03) 477-0969	
ZL2EG	Land SAR Liason	Jeff Sayer	ZL2TFZ	(04) 527-9648	(04) 560-2722				
	Training	Jim Rowe	ZL1AVR	(07) 868-9193	(025) 235-7266				

AREC Section Leaders and Deputies

E. Call	Section	Section Leader	Call	Home	Work	Deputy Leader	Call	Home	Work
ZL1EA	Auckland	Arnold Gibbons	ZL1MA	(09) 533-8574		Don Webster	ZL1CY	(09) 575-5554	
ZL1EB	North Shore	Terry James	ZL1UFY	(09) 419-1958	(025) 966-072	Alan Wooller	ZL1AUW	(09) 444-2423	
ZL1EC	Hamilton	John Lisignoli	ZL1UST	(07) 855-5912		David Nation	ZL1TCE	(07) 843-0108	(07) 834-6767
ZL1ED	Te Awamutu	Chris Ellison	ZL1AKK	(07) 871-3733		Mervyn Owen	ZL2AVY	(07) 871-9992	
ZL1EE	Taumarunui	Lew Palmer	ZL1TIG	(07) 895-8113	(07) 895-8260	Jim Allison	ZL1AO	(07) 896-7451	
ZL1EF	Waihi	David McGuire	ZL3DM	(07) 863-5484		Peter Anderson	ZL1LR	(07) 863-7546	(07) 863-7546
ZL1EG	Northland	Brian Winger	ZL1TBW	(09) 436-0262	(09) 438-8232	Don Ewen	ZL1DTE	(09) 432-0185	(025) 974-356
ZL1EI	Thames	Jim Rowe	ZL1AVR	(07) 868-9193		Ken Hayhurst	ZL1ATU	(07) 868-7330	(07) 868-0000
ZL1EJ	Tauranga	Gordon Cooper	ZL1KL	(07) 548-1286	(025) 239-0527	Russel Miller	ZL1CAK	(07) 578-5521	
ZL1EK	Western Suburbs	Paul Granger	ZL1JC	(09) 820-0676	(09) 376-6191	John Turnwald	ZL1JT	(09) 827-3538	
ZL1EL	Cambridge	Tony Boyce	ZL1AFV	(07) 827-6107	(07) 827-7358	Des Hamblyn	ZL1HP	(07) 827-6247	
ZL1EM	Eastern B.O.P.	Alan McDonald	ZL1PI	(07) 308-7740	(07) 308-8967	Les Clark	ZL1BQX	(07) 308-8615	
ZL1EN	Franklin	Bob Holt	ZL1BBZ	(09) 235-9549	(025) 200-0331	Murray Griffin	ZL1UHT	(09) 238-6192	(025) 396-834
ZL1EO	Kawerau	Barry Liddle	ZL1CAY	(07) 323-8970	(07) 323-3860	Ray Dyer	ZL1AIS	(07) 323-6199	
ZL1EP	Waitomo	Mick Gannon	ZL1HJ	(07) 878-7140		Andrew Leadley	ZL4SQ	(07) 877-8675	
ZL1EQ	Rotorua	Graeme Hunt	ZL1ANH	(07) 349-1581	(07) 348-6852	Peter Dare	ZL1PJ	(07) 345-6469	(07) 347-5899
ZL1ER	Tokoroa	Graham Henley	ZL1GDH	(07) 886-6498	(07) 886-1761	Brian Williamson	ZL1BYO	(07) 886-5658	(07) 886-6109
ZL1ES	Papakura	Richard Gamble	ZL1BNQ	(09) 537-1238	(09) 272-0114	David Karrasch	ZL1TTS	(09) 298-5271	(09) 266-0180
ZL1ET	Taupo	Graham Messenger	ZL1BVO	(07) 378-4162		Roger Simmonds	ZL1UTW	(07) 378-9676	
ZL1EU	Manukau	Jim Milligan	ZL1BAM	(09) 576-9163	(09) 528-8916	Ian Lindsay	ZL1AMR		
ZL1EV	Te Puke	Bernie Rickard	ZL1TKY	(07) 573-9856		Syd Rowe	ZL2ULA	(07) 533-1029	(07) 577-0288
ZL1EW	Rodney	Mike Ryan	ZL2MR	(09) 425-4401		Jim Goodsir	ZL1BJI	(09) 425-5944	
ZL1EY	Opotiki	Jim Jones	ZL1JRJ	(07) 315-7067		Steve Winder	ZL1ACE	(07) 315-7333	
ZL1EZ	Northern Wairoa	Les Ward	ZL1BIW	(09) 439-7079		J. Bakulich	ZL1BAU	(09) 439-7975	(09) 439-7600
ZL6EA	Far North	Russell Shackleton	ZL1BQK	(09) 408-0057	(09) 408-0190	Brian Tarlton	ZL1BAY	(09) 408-1447	
ZL6EB	Te Aroha	Brian McConnochie	ZL1BWK	(07) 884-8871	(07) 884-8189	Grant Horn	ZL1UNX	(07) 884-5720	
ZL6EC	Hibiscus Coast	Blair Jackson	ZL1NV	(09) 415-9300	(09) 415-7377	John Bell	ZL1FB	(09) 424-5725	
ZL6ED	Mercury Bay	Geoff Penney	ZL1APO	(07) 866-4703	(07) 866-0035	Jack MacLardy	ZL1TIR	(07) 866-5876	
ZL6EE	Auckland VHF Grp.	Doug Cooke	ZL1TTE	(09) 846-6075	(09) 815-2299	Peter Loveridge	ZL1UKG	(09) 377-3398	
ZL2EA	Gisborne	Mike Mather	ZL2CC	(06) 867-7705	(06) 868-5381	Ian McLachlan	ZL2IMM	(06) 868-8653	(06) 868-4134
ZL2EB	New Plymouth	Wayne Gaudin	ZL2VN	(06) 753-5800	(06) 753-6139				
ZL2EC	Motueka	Robin Reeve	ZL2FZ	(03) 528-6868					
ZL2ED	Wanganui	Craig Mills	ZL2MD	(06) 345-0766		Tony Shearman	ZL2ALO	(06) 344-6110	
ZL2EE	Hastings	Robert Wallace	ZL2SG	(06) 878-4993	(06) 878-7119	John Newson	ZL2VAF	(06) 876-3218	(06) 878-3066
ZL2EF	Kapiti	Len Blackley	ZL2TFP	(04) 298-7048	(04) 472-6881	Dennis Young	ZL2BFI	(04) 298-6664	
ZL2EG	Wellington VHF	Jeff Sayer	ZL2TFZ	(04) 527-9648	(04) 560-2722	John Yaldwyn	ZL2TRV	(04) 478-3222	(04) 499-6000
ZL2EH	Tararua District	Steve Cooper	ZL2WAU	(06) 374-8288	(06) 376-4745	Riki Allison	ZL2BRU	(06) 374-9321	
ZL2EI	Manawatu	Bruce Galley	ZL2WBG	(06) 357-4227		Barrie Angland	ZL2WBA	(06) 356-8448	(06) 355-4468
ZL2EJ	Wairarapa	David Bray	ZL2UCW	(06) 378-8288	(06) 370-1991	Gavin McAnulty	ZL2VGB	(06) 377-3978	(06) 378-2099
ZL2EK	Rahotu Coastal	Peter McNeil	ZL2BQW	(06) 761-8028		Tom Clouston	ZL2AQP	(06) 761-8082	
ZL2EL	Upper Hutt	Gavin Smith	ZL2ACT	(04) 970-8533	(025) 226-5719	Arnold Darby	ZL2ASD	(04) 526-6710	(04) 526-6710
ZL2EN	Nelson	Brian Hawken	ZL2WDI	(03) 547-0382	(03) 544-7095	David Holland	ZL2TPV	(03) 548-5414	(025) 754-005
ZL2EO	Marlborough	Paul Rennie	ZL2NBP	(03) 578-5311	(03) 577-7007	Gary Ching	ZL2BTV	(03) 578-4102	(03) 578-4102
ZL2EP	Inglewood	Tarry Martin	ZL2KV	(06) 756-7627		Graham Meads	ZL2TGM	(06) 756-7998	(06) 756-7194
ZL2EQ	Napier	Duncan Frew	ZL1UIO	(06) 844-5367	(06) 834-4440	John Lane	ZL2ARF	(06) 844-3266	
ZL2ER	Waimarino	Bill Luscombe	ZL2AVL	(06) 387-6707		Dave Inkster	ZL2BLI	(06) 385-8596	(06) 385-8361
ZL2ES	Horowhenua	Steven Knight	ZL2UKC	(06) 367-9509		Alan McLauchlan	ZL2AVA	(06) 368-9274	
ZL2ET	Titahi Bay	Ron Blackwood	ZL2OY	(04) 232-5587		Brian Amies	ZL2AYF	(04) 232-6378	(04) 232-4954
ZL2EV	Patea	Graeme Bateman	ZL2BHD	(06) 278-4793		Peter Williams	ZL2AID	(06) 278-4292	(06) 278-4026
ZL2EW	Marton	Brian Purdie	ZL2TPS	(06) 329-3606	(025) 846-551	Jim Vernon	ZL2BHX	(06) 388-1855	025-462-628
ZL2EY	Hutt Valley	Bob Sewell	ZL2ASO	(04) 564-6929		Dave Williams	ZL2UTL	(04) 564-6713	
ZL7EA	Feilding	Gil Hitchman	ZL2BNA	(06) 323-5847		A. Abel	ZL2QR	(06) 323-6538	
ZL7EC	Waitara	To be advised				Ian Cash	ZL2BRA	(06) 754-6183	(06) 755-0900
ZL7ED	Sth.Wairarapa	Neil Rait	ZL2BLM	(06) 308-9341		Bob Pearce	ZL2GJ	(06) 306-9798	
ZL3EA	Christchurch	Dudley Berry	ZL3TOB	(03) 389-4718	(03) 364-2102	Jeni Deans-Syddall	ZL3TCG	(03) 318-1694	(03) 318-0803
ZL3EB	Westland	John Melse	ZL3VLJ	(03) 762-6549		Kevin O'Sullivan	ZL3ABY	(03) 768-7598	(03) 768-9300
ZL3EC	Sth.Canterbury	Glenn May	ZL3GL	(03) 686-0306	(03) 688-9073	David Hetherington	ZL3UDH	(03) 688-3619	
ZL3ED	Ashburton	Les Vincent	ZL3UX	(03) 303-6306	(025) 411-647	L Moller	ZL1VF	(03) 308-1007	
ZL3EE	Sth.Westland	Ron Searle	ZL3MY	(03) 755-6741					
ZL3EF	Reefton Buller	Kerry Silverwood	ZL3CG	(03) 789-9750		John Kilkolly	ZL3SO	(03) 789-7004	
ZL3EG	Nth.Canterbury	Geoff Gillman	ZL3QR	03-313-7137		Ian Hewson	ZL3CE	03-327-6647	
ZL3EH	Kaikoura	Bill Jackson	ZL3PZ	(03) 319-5981		H. Bryant	ZL3GB	(03) 319-5897	
ZL4EA	Otago	Dave Stevenson	ZL4SB	(03) 454-2527	(03) 455-5440	Alan Cross	ZL4QK	(03) 482-1700	
ZL4EB	E. Southland	Dick Whyte	ZL4AQ	(03) 208-6793		Alastair Allan	ZL4AO	(03) 208-7288	
ZL4EC	Southland	Neville Checketts	ZL4OX	(03) 216-6599	(025) 377-431	Crosbie Stewart	ZL4TIC	(03) 216-3060	
ZL4ED	Balclutha	John Blair	ZL4AM	(03) 415-7849		Phil Beeby	ZL4TGU	(03) 418-2337	(03) 418-1239
ZL4EE	Centr.Otago	Peter Leigh	ZL2APO	(03) 445-1798		Wattie Beveridge	ZL4ST	(03) 448-6880	(03) 448-8038
ZL4EF	North Otago	Neil McLeod	ZL4SN	(03) 434-7253		Gary Millar	ZL4TA	(03) 434-5993	(03) 434-5029
ZL4EG	Queenstown	Russ Watson	ZL4JW	(03) 442-9374	(03) 422-6772	Dave Allison	ZL2TSI	(03) 442-5258	

AREC records have been updated from the National Database. Any additions or omissions to AREC Secretary, P.O. Box 44-132, Pt Chevalier, Auckland.

BRANCHES AND MEMBERSHIP

A Policy Statement by Council (Revised 1995)

Members will be aware of the requirement in paragraph 27 of the Association's Constitution that Branches must not admit to membership persons who hold an amateur station licence, but who are not members of the Association.

Over the years there have been attempts to repeal or modify these provisions, but successive National Conferences have made it quite clear that members will have none of it. The rationale for this Constitutional provision is that it provides at least one way in which non-members can be denied the privileges which membership of the Association brings. We cannot stop our non-member brethren enjoying some benefits—such as the negotiations the Association conducts with the licensing authorities, the use of repeaters, and the enjoyment of the benefits which band plans bring. Council is firmly of the view that it is unfair to those who do pay their subscriptions if the lot of non-members is made easier by the ready availability of members' privileges which the Association is, in fact, able to withhold. Further, the Association has to take into account the feelings of its many voluntary workers, who devote many hours to Association matters, and, in addition, pay their subscriptions as well. These persons have even greater cause to complain if the Association makes benefits available to non-members who do not contribute to these benefits by at least joining the Association and paying a subscription.

Branch Officers

It is disturbing to Council to find that some Branches not only fail to have regard to their Constitutional obligations by ensuring that licensed amateurs who are not Association members do not join the Branch, but even have as Branch Officers persons who are licensed amateurs but not members of the Association. This is clearly unconstitutional. If an Officer is not an Association member, but is a licensed amateur, then there is a breach of the Association Constitution. This should also be a breach of the Branch Constitution— if it is not, the Branch Constitution is faulty and must be brought into line. (See the Association's Constitution, paragraph 27.)

Regrettably, there are still one or two clubs that indulge in a fiction— they attempt to evade their responsibilities to NZART, whether arising under paragraph 27 or otherwise, by purporting to distinguish between the local club and the NZART branch. This fiction ignores the realities, and is not acceptable. The reality is that the local club itself is the NZART Branch, and the Branch Constitution must be changed to reflect this commitment to NZART if that is necessary. Any attempt (for that is all it is) to circumvent the Association Constitution by resorting to this fiction is unfair to the local NZART members, other NZART members, and the Association itself.

Relationship between Branches and the Association

Sometimes, Branch members criticize these rules, often using catch phrases such as "breach of human rights", or "interference with independent clubs". These provisions of the Association Constitution are nothing of the sort. They are part of the contract that members make when they join the Association. By applying to become or by remaining an Association Branch, the Clubs or Branches surrender their independence to the extent required to conform with the Association's Constitution. Branches are expected to keep their houses in order; if they are not prepared to do this, then they should surrender their status as a Branch. There is nothing in the Human Rights Act to prevent the Association and its Branches from discriminating between members and non-members.

Whose job is it to be the policeman?

The answer is—nobody's and everybody's. The Association's Constitution does not specifically charge Council or any Officer with the task of enforcement. So long as we remain members, we are all parties to the contract represented by the Constitution and we each individually have that responsibility. If a Branch is Incorporated in its own right, then the Branch in its corporate capacity also has that duty.

Hardship

Hardship is not a ground for failing to become an Association member. Association subscriptions can be remitted under paragraph 7(e) of the Association's Constitution and Council will authorize this where there is genuine hardship. But Council's experience has been that the genuine hardship is rare indeed. Many claims of hardship over the years have been found, on enquiry, not to be genuine. Application for this concession should be made in person by the member. Council will then usually discreetly seek further information from the Branch. Council would expect there to be no more than half a dozen such cases throughout the country at any one time. The privacy of the applicant is respected by ensuring that as few persons as possible within the Association are aware of the Application.

Why are we telling you this now?

Council has never said anything else. But there are now some situations which create special problems for the Association.

The Association enters into contracts with public corporations and SOEs relating to right of entry for the siting of repeaters. These contracts recognize potential liability and require the Association as a condition of the contract to take public liability insurance which could be up to $2 million or more. This insurance will be taken on terms which will extend to protect both the Association and individual members. Naturally, the corporations we are dealing with take comfort in this insurance, as they know that while the insurance is in place the Association has the indemnities required to meet any claims. This means that to come within the Association's cover, individuals must be members, as the Association has no intention of paying additional premiums to insure against the actions of non-members. If an individual incurs liability as agent of the Association, then that individual must be a member to take the benefit of any cover the Association arranges. The Association will not appoint non-members as its agents, as this would nullify the insurance cover.

As Branches have responsibility with the Association for repeaters, Branch Officers are required to be Association members. This is not more than the Constitutional requirement. Because of these matters, Council will, in future, have to be more active in seeing that the Constitution is observed.

As the appointment of repeater trustees is an Association matter, even if exercised through Branches, repeater trustees must also be members. This, likewise, is a necessary consequence of the provisions of the Constitution. Council, in future, will have to ensure that repeater trustees are Association members, not only because this is a Constitutional requirement, but also to ensure that the persons responsible for the operation of repeaters have adequate insurance cover to meet the requirements of our contracts with the public corporations.

Action

Take action now to ensure that your Branch complies with the Association's Constitution. Your Councillors will help you with advice as required.

This policy statement was first published in the August 1990 Break-In. It is now reissued in a slightly revised form.

NZART Council

The Constitution of the New Zealand Association of Radio Transmitters Incorporated

is available from:

The Business Manager, NZART, Freepost 3565, PO Box 40-525, Upper Hutt 6415

or NZART URL: http://www.nzart.org.nz/nzart nzart@clear.net.nz

NZART BRANCH DIRECTORY

Alphabetical List of Branches

01M	Ashburton	16C	Horowhenua	52C	*Northern Hawkes Bay*	60N	Taupo
02N	Auckland	79N	Howick	73N	Northern Wairoa	39N	Tauranga
66N	Auckland VHF	17N	Huntly	64S	North Otago	77N	Te Aroha
33S	Balclutha	18C	Hutt Valley	72N	Opotiki	40N	Te Awamutu
84N	Bay of Islands	19C	Inglewood	30S	Otago	53N	Te Puke
04V	Cambridge	76M	Kaikoura	31C	*Pahiatua*	41N	Thames
15C	*Central Hawkes Bay*	69C	Kapiti	65N	Papakura	42C	Tatihi Bay
61S	Central Otago	67N	Kawerau	54C	Patea	57N	Tokora
05M	Christchurch	20C	Manawatu	75S	*Queenstown*	63C	Upper Hutt
56M	Christchurch West	59N	*Mangakino*	83N	Raglan	43N	Waihi
51N	Eastern Bay of Plenty	21N	Manukau	32C	Rahotu Coastal	81N	Waikato VHF
08S	Eastern Southland	22C	Malborough	62M	Reefton-Buller	45C	*Waimarino*
09	*Egmont*	23C	Marton	71N	Rodney	46C	Wairarapa
78N	Far North	44N	Matamata	33N	Rotorua	47C	Waitara
70C	Feilding	85N	Mercury Bay	34M	South Canterbury	55N	Waitomo
10C	Franklin	44C	Moteuka	36M	*South Westland*	48C	Wanganui
11C	Gisborne	25C	Napier	82C	Southern Wairarapa	50C	Wellington
12N	Hamilton	26C	Nelson	37S	Southland	74C	Wellington VHF
13C	Hastings	27C	New Plymouth	86N	Suburban	03N	Western Suburbs
14C	Hawera	68M	Northern Canterbury	06C	Tararua	49M	Westland
58N	*Helensville*	29N	North Shore	38N	Taumarunui	28N	Whangarei
80N	Hibiscus Coast						CARDS

Letter after Branch number donates electorial district – N=Northern, C=Central, M=Midland, S=Southern. *Italics* = Branches in recess.
Affiliated Branches: Canterbury Amateur Radio Development Society Inc (CARDS); Suburban Amateur Radio Club Inc.

01 Ashburton
Physical Address: 89 Creek Road, Ashburton
Postal Address: C/- 89 Creek Road, Ashburton 8300
E-mail: gmatt@voyager.co.nz
Branch Callsign: ZL3AF
President: Gordon Mattingley ZL3AQ
Secretary: Morry Turner ZL3RP
Treasurer Phil Rodgers ZL3TIK
AREC Section Leader Les Vincent ZL3UX
Net Information: 144.600 Hz on Mondays at 2030 except club nights
Contact Person: Gordon Mattingley ZL3AQ
Contact Phone Number: (03) 308-8555
Meeting Information: Second Monday each month (except January) at 1930

02 Auckland
Physical Address: 400 St Johns Road, Meadowbank, Auckland
Postal Address: PO Box 18-003, Glen Innes, Auckland 1130
Branch Callsign: ZL1AA
President: Neil Cromarty ZL1CWD
Secretary: Rolly Adams ZL1ASN
Net Information: 146.600 on Mondays at 2015 and 3645 kHz on Mondays at 2100
Contact Person: Selwyn Ross ZL1BRC
Contact Phone Number: (09) 575-8847 Web page http://www.qsl/zl1aa
Packet: ZL1AA@ZL1AB
Web: http://www.nzart.org.nz/nzart/branches/ak1/branch02/zl1aa.html
Meeting Information: Third Tuesday each month (except January) at 1930. Midweek last Wednesday (except December) at 1300

03 Western Suburbs Radio Club (Inc)
Physical Address: 3000 Great North Road, New Lynn, Auckland
Postal Address: PO Box 15-122, New Lynn, Auckland 1232
Branch Callsign: ZL1AC
President: James Moore ZL1WOT
Secretary: Roy Milam ZL1WI
AREC Section Leader Brian Huggard ZL1MW (09) 833-7006
AREC Deputy Section James Moore ZL1WOT (09) 627-5576
Net Information: 3622 kHz on Fridays at 1930. 146.525 on Wednesdays at 1930
Contact Person: Ross W. Reddell ZL1VRR
Contact Phone Number: (09) 629-0504. E-mail: ross.reddell@xtra.co.nz
Meeting Information: Second Monday of each month at 1930 (except January)

04 Cambridge Radio Club
Physical Address: Cambridge Community Seminar Centre, 22a Taylor Street
Postal Address: PO Box 650, Cambridge 2351
Branch Callsign: ZL1HP
President: Peter Sadgrove ZL2UJ
Secretary: Ian Honey
Contact Person: Des Hamblyn ZLHP
Contact Phone Number: (07) 827-6247
Meeting Information: Every Tuesday of each month at 1930

05 Christchurch Amateur Radio Club
Physical Address: 27 Galbraith Avenue, Avonside, Christchurch
Postal Address: PO Box 1733, Christchurch 8015
Branch Callsign: ZL3AC
President: Rob Thirkettle ZL3RX
Secretary: Mkevin Heyward ZL3KWH
Net Information: Canterbury 725 (if available, otherwise on 705 repeater) on Sundays at 2000
Contact Person: Rob Thirkettle ZL3RX
Contact Phone Number: (03) 384 3815 E-mail: r.thirkettle@phys.canterbury.ac.nz
Meeting Information: First Wednesday each month February to December at 1930. AREC meets on the second Wednesday at 1930. "Social get-together" every Tuesday night 1930 till late February to December
Web page: http//www.nzart.org.nz/nzart/branches/chch/branch05/

06 Tararua District Radio Club
Physical Address: Woodville Racing Club Tea Kiosk, McLean Street, Woodville
Postal Address: C/- Rosewood Villa 24 York Street, Hillcrest Dannevirke 5491
Branch Callsign: ZL2IB
President: Tom Fleming ZL2UKD
Secretary: Stephen Cooper ZL2WAU
Net Information: 146.650 (Whariti Repeater) and 438.700 (Hawkes Bay) (linked) on Fridays at 2000.
Contact Person: Stephen Cooper ZL2WAU
Contact Phone Number: (06) 374 8288) (home) or 021 54 8288 (mobile).
E-mail: rosewoodvilla@actrix.co.nz
Meeting Information: Second Sunday each month (except January) at Woodville Racecourse Tea Kiosk 1400
AREC Meeting: Fourth Tuesday each month (except December) at Tararua District Council Emergency Group Headquarters, 42 Denmark Street, Dannevirke 1930

08 Eastern Southland
Physical address C/- 33 Coutts Road, Gore 9700
Postal Address: C/- D. C. Robertson, 33 Coutts Road, Gore 9700
Branch Callsign: ZL4AL
President: Neil Gilder ZL4GL
Secretary: Colin Robertson ZL4KJ
Contact Person: Neil Gilder ZL4GL
Contact Phone Number: (03) 208-4192. E-mail: njgilder@e3.net.nz
Meeting Information: Fourth Wednesday each month at various venues at 1930

09 Egmont
In Recess

10 Franklin Amateur Radio Club (Inc)
Physical Address: Stadium Drive, Pukekohe
Postal Address: C/- 25 John Street, Pukekohe 1800
Branch Callsign: ZL1SA
President: Bob Holt ZL1BBZ
Secretary: Tom McDonald ZL1TO
Net Information: 3700 kHz on Sundays at 0900. Bombay 690 on Sundays at 0930
Contact Person: Bob Holt ZL1BBZ
Contact Phone Number: (09) 235-9549. E-mail: zl1to@nzart.org.nz
Meeting Information: Third Tuesday each month at 2000

11 Gisborne Amateur Radio Club
Physical Address: Gisborne Cosmopolitan Clubrooms, Grey and Derby Streets, Gisborne
Postal Address: PO Box 1017, Gisborne 3815
Branch Callsign: ZL2AA
President: Mike Mather ZL2CC
Vice President Alan Mackintosh ZL2AOP
Secretary: Ric Coleman ZL2RIC. E-mail: ricol@paradise.net.nz
Net Information: 3685 kHz every evening from 2030. 146.800 every evening 1800
BBS: ZL2AA
Contact Person: Ric Coleman ZL2RIC
Contact Phone Number: (06) 868 4721
Meeting Information: General and Committee second Monday each month at 1930

12 Hamilton Amateur Radio Club (Inc)
Physical Address: 88 Seddon Road. Hamilton
Postal Address: PO Box 606, Hamilton 2015
Branch Callsign: ZL1UX
President: Tony Case
Secretary: Phil King ZL1PK
Net Information: 3575 kHz on Mondays at 1930. 146.950 on Tuesdays at 2000
Contact Person: Steve Alderson ZL1UAE
Contact Phone Number: (027) 498-0927. E-mail: aldersson@wave.co.nz
Meeting Information: General Meeting third Wednesday of each month at 1930 (except December and January), Business Meeting first Wednesday at 1930
AREC Sector Leader: John Lisignoli ZL1UST
AREC Deputy Sector Leaders: Tony Case ZL1UD and David Nation ZL1TCE

13 Hastings/Havelock North
Physical Address: Surf Lifesaving Rooms, Grove Road, Hastings
Postal Address: 108 Norton Road Hastings. 4201
Branch Callsign: ZL2AS
President: Chris Johnson ZL2VC
Secretary: Brian Fennessy ZL2TBF
Net Information: 3615 kHz on Sundays at 0900 and 147.250 Repeater
Contact Person: Brian Fennessy ZL2TBF
Contact Phone Number: (06) 876-6640. E-mail: brian.fennessy@paradise.net.nz
Meeting Information: Fourth Wednesday each month (except December) at 1930 at Surf Lifesaving Rooms.

14 Hawera Amateur Radio Club
Postal Address: 126 Fairfield Road, Hawera 4800
Branch Callsign: ZL2AWW
Contact Person: Peter Williams ZL2AID
Contact Phone Number: (06) 278-4292
Meeting Information: Irregular

15 Central Hawkes Bay Radio Club
In Recess

16 Horowhenua
Physical Address: Jack Allen House, Durham Street, Levin
Postal Address: 7 Earl Street, Levin 5500
Branch Callsign: ZL2DS
Secretary: Allen Little ZL2GB
Net Information: 3590 kHz on Sundays at 0900. 147.575 on Sundays at 1000
Contact Person: Allen Little ZL2GB
Contact Phone Number: (06) 368-8484
Meeting Information: Last Sunday, odd months at Jack Allen House at 1400

17 Huntly Radio Club
Physical Address: T. A. and E. M. East Rotongaro Road, RD 2 Huntley
Postal Address: T. A. and E. M. East Rotoronga Road, RD 2 Huntley
Branch Callsign: ZL1BL
President: Terry East ZL1BGS
Secretary Jim Williams ZL1BOS
Contact Phone Number: (07) 826 6730 or (07) 824 6805. E-mail: jim-bos@wave.co.nz
Meeting Information: Second Tuesday at 1930 at 520 Kaunui Road, Taupiri

18 Hutt Valley (Inc)
Physical Address: Birch Street Reserve, Waterloo
Postal Address: PO Box 30-519, Lower Hutt 6315
Branch Callsign: ZL2HV
President: Bruce Douglas ZL2WP
Secretary: Chris Purcell ZL2POS
Net Information: 3675 kHz on Sundays at 0900
Contact Person: Bruce Douglas
Contact Phone Number: (04) 589-1802. E-mail: amoeba@paradise.net.nz
Meeting Information: First Monday each month at 1930. Also every Friday at 1930 (informal)
Website: http/homepages.paradise.net.nz/amoeba/

19 Inglewood
Postal Address: 1778 Mountain Road, RD10, Inglewood 4651
President Peter Cramer ZL2AIS
Secretary: Tarry Martin ZL2KV
Contact Person: Peter Cramer ZL2AIS
Contact Phone Number: (06) 756-7314

20 Manawatu Amateur Radio Society
Physical Address: Totara Road, Palmerston North 5301
Postal Address: P.O. Box 1718, Palmerston North
Branch Callsign: ZL2KO
President: B.W.Priest ZL2BOB
Secretary: Iann W Ogier ZL1AF
Net Information: 3570 kHz on Sundays at 0930. 147.125 kHz on Thursdays at 2000
Contact Person: Stan Russell ZL2BRS
Contact Phone Number: (06) 358-6683
Meeting Information: First Wednesday each month at 1930, fourth Wednesday 1400 for "Old Timers etc" fifth Wednesday 1930 social "natta session" third Wednesday at 1930 committee meeting
Additional information: First Friday each month 2000 on 999 kHz for those interested "Radio Waves" a program for the amateur. This is repeated the following Tuesday by Print Disabled at 1800 on 1602 kHz and 3935 kHz

21 Manukau Radio Club (Inc)
Physical Address: 8 Guide Place, Papatoetoe
Postal Address: 8 Guide Place, Papatoetoe 1701
Branch Callsign: ZL1QB
President: Jim Paltridge ZL1JW
Secretary: Terry Rist ZL1TR
Net Information: 3652 kHz and 146.550 on Sundays at 0900.
Contact Person: Jim Paltridge. ZL1JW.
Contact Phone Number: (09) 278 3389. E-mail: Paltridge@xtra.co.nz
Meeting information: Get to gether third Monday 1015. General meeting third Wednesday each month at 1930. Construction and play night fourth Wednesday at 1930

22 Marlborough Amateur Radio Club (Inc)
Physical Address: CD Headquarters, Withers Road extension (West) Bleinheim
Postal Address: PO Box 432, Blenheim 7315
Branch Callsign: ZL2KS
President: Ian Conway ZL2BGL
Secretary: Helen Harris ZL2TPT
Net Information: 3575 kHz on Sundays at 0900. Blenheim 146.950, 145,600 and 147.225 on Mondays at 1930
Contact Person: Helen Harris
Contact Phone Number: (03) 575-7181. E-mail: Mt.Adde@xtra.co.nz
Meeting Information: General second Thursday each month, at 1930 at the CDHQ. Social Group third Thursday each month 1400 at CDHQ. Committee fourth Thursday each month

23 Marton and Districts
Physical Address: Marton CDHQ Rooms (back of Public Library Building, High Street, Marton
Postal Address: PO Box 279, Marton 5460
Branch Callsign: ZL2AMS
President: Brian Purdie ZL2TPS
Secretary: Fred Rubery ZL2NR
Net Information: 6775 on Sundays at 2000
Contact Person: Dusty Miller ZL2VS
Contact Phone Number: (06) 327-6225. E-mail: rubery@voyager.co.nz
Meeting Information: Fourth Wednesday each month at 1930 at Marton CDHQ

24 Motueka (Inc)
Postal Address: PO Box 218, Motueka 7161
Branch Callsign: ZL2GK
President: Geoff Goodger ZL2VBO
Secretary: Doug Anderson ZL2DJA
Contact Person: Stephen Fogerty ZL2ASF
Contact Phone Number:(03) 528 8707. E-mail: Baylink@paradise.net.nz
Meeting Information: First Monday each month (except Public holidays) at 1930, 18 Harbour Road Motueka

25 Napier Amateur Radio Club (Inc)
Physical Address: 123 Latham Street, Marewa, Napier 4001
Postal Address: 4 Tukes Place, Greenmeadows, Napier
Branch Callsign: ZL2GT
President: Stan White ZL2ST
Secretary: Randall Goldfinch ZL1NW
Net Information: 3615 KHz and Napier 7250 on Sundays at 0900
Contact Person: Barry Luke ZL2BWL.
Contact Phone Number: (06) 844-1540. E-mail: bluke@xtra.co.nz
Meeting Information: First Wednesday each month at 1930 at Club Rooms (except January)

26 Nelson Amateur Radio Club
Postal Address: P.O. Box 414, Nelson 7015
Branch Callsign: ZL2ARG
President: David Holland ZL3TPV
Secretary: James Halford ZL4CVE
Net Information: 3890 kHz on Sundays at 0900
Contact Person: David Holland ZL3TPV
Contact Phone Number: (03) 548-5414. E-mail: david@innovativecomputer.co.nz
Meeting Information: Third Wednesday each month at 1930. Committee meets each second Wednesday

27 New Plymouth Amateur Radio Club
Physical Address: Taranaki Emergency Management Office, Marsland Hill
Postal Address: C/- TEMPO, 45 Robe Street, New Plymouth 4601
Branch Callsign: ZL2AB
President: Ian Hayton ZL2IH
Secretary: Brian Lawn ZL2AJS
Net Information: Wednesday at 2000 on 720. AM net on Wednesday at 2030 on 3850 kHz and SSB net on Thursday at 2000 on 3593 kHz
Contact Person: Brian Lawn ZL2AJS
Contact Phone Number: (06) 753-5655. E-mail: zl2ajs@nzart.org.nz
Meeting Information: Third Tuesday each month (except January) at 1930

28 Whangarei Amateur Radio Club (Inc)
Physical Address: Heritage Park, SH 14 Maunu, Whangarei
Postal Address: PO Box 10-078, Te Mai, Whangarei
Branch Callsign: ZL1AM
President: Paul Slako ZL1PC
Secretary: Charlie Moates ZL1DAC
Net Information: 3585 kHz on Sundays at 0900. 147.200 on Mondays at 2000. 3580 kHz (CW) Tuesdays at 2000
Contact Person: Charles Moates ZL1DAC
Contact Phone Number: (09) 434-7292, Fax (09) 434-7206.
E-mail: charliemoates@xtra.co.nz
Meeting Information: First Wednesday each month at 1930. Informal gatherings at the clubroom every Wednesday at 1700

29 North Shore (Inc)
Physical Address: CD HQ, 400 East Coast Road, Mairangi Bay, North Shore
Postal Address: 400 East Coast Road, Mairangi Bay Nth Shore 1310
Branch Callsign: ZL1AB
President: Alan Wooller ZL1AUW
Secretary: Arthur Godfrey ZL1HV
Net Information: 3775 kHz on Sundays at 0900. 147.425 on Wednesdays at 1930
Contact Person: Roy Henderson ZL1JDW
Contact Phone Number: (09) 444-5892. E-mail: zl1jdw@dxworldvoices.net
Meeting Information: Every Monday at 1930, every Saturday at 0900
Website: www.geocities.com.msheffield/northshore.htm or via nzart.org.nz

30 Otago
Physical Address: 109 Macandrew Road, Dunedin
Postal Address: PO Box 5485, Dunedin 9015
Branch Callsign: ZL4AA
President: Alan Cross
Secretary: Alan Rackley ZL4CG
Net Information: Dunedin 690 on Sundays at 1930
Contact Person: Alan Gilchrist ZL4PZ
Contact Phone Number: (03) 488-0608
Meeting Information: Each Wednesday (except late December and early January) at 1930

31 Pahiatua
In Recess refer to Branch 06

32 Rahotu Coastal Inc Opunake Radio Club
Physical Address: 166 Tasman Street
Postal Address: 166 Tasman Street, Opunake 4854
Branch Callsign: ZL2ANN
President: Peter McNeil ZL2BQW
Secretary: J. N. Jago ZL2DBX
Contact Person: H.Gorton ZL2ADU
Contact Phone Number: (06) 761-7027
Meeting Information: As required

33 Rotorua Amateur Radio Club (Inc)
Physical Address: Rotorua Arts Village, 1240 Hinemaru Street, Rotorua
Postal Address: 13 McDowell Street, Rotorua
Branch Callsign: ZL1ROT
President: Dor M Robinson ZL2QX
Secretary: Murray G Thompson ZL1SY
Net Information: Rotorua 435 on Fridays at 2030
Contact Person: Murray Thompson (07) 348-9741 or Murray Parkinson (07) 348-4561
E-mail: mthomps@xtra.net.nz
Meeting Information: First Tuesday each month at 1930 at CD Rooms at District Council Chambers, Third Tuesday each month at 1930 at Rotorua Arts Village, 1240 Hinemaru Street, Rotorua

34 South Canterbury
Physical Address: CD HQ, Bank Street, Timaru
Postal Address: C/- F2/ 16 Norwood Street, Timaru 8615
Branch Callsign: ZL3UR
President: Brian McDonald ZL3HF
Secretary: Rex Firman ZL3DY
Net Information: Timaru 695 on Sundays at 1930
Contact Person: Brian McDonald ZL3HF
Contact Phone Number: (03) 686-1157. E-mail: electric@es.co.nz
Meeting Information: Last Monday of each month (except December) at 1930

35 Balclutha
Physical Address: Main South Road
Postal Address: "Graylea", RD 2, Balclutha 9200
Branch Callsign: ZL4JF
Net Information: 3585 kHz on Mondays at 2000. Kuriwao 675 on Mondays at 1930
Contact Person: Philip Beeby ZL4TCU
Contact Phone Number: (03) 418-2337
Meeting Information: First Tuesday each month (except January) at 2000

36 South Westland
In Recess

37 Southland
Physical Address: 249 Ettrick Street, Invercargill
Postal Address: P.O. Box 1260, Invercargill 9515
Branch Callsign: ZL4GQ
President: Crosbie Stewart ZL4TIC
Secretary: John Willoughby ZL4FV
Contact Person: Crosbie Stewarrt ZL4TIC
Contact Phone Number: (03) 216-3060
Meeting Information: Second Tuesday of each month, (except January) at 1930. AREC Second Tues

38 Taumarunui
Postal Address: C/- T. R. Hardisty, 293 Taupo Road, Taumarunui 2600
President: L. Palmer
Secretary: T. Hardisty
Contact Person: Trevor Hardisty
Contact Phone Number: (07) 895-7994
Meeting Information: As required

39 Tauranga Amateur Radio Club (Inc)
Physical Address: CDHQ, Barkes Corner, Tauranga
Postal Address: C/- PO Box 12803, Tauranga
Branch Callsign: ZL1TP
President: Russell Miller ZL1CAK
Secretary: Gordon Cooper ZL1KL
Net Information: 3600 kHz on Sundays at 0900. 438.850 on Tuesdays at 0900 and 1930. On Wednesdays 146.800 at 2030
Contact Person: John Collin ZL1BNW
Contact Phone Number: (07) 578-9213. E-mail: john.zlbnw@wxc.net.nz
Meeting Information: Second Tuesday each month except January at 1900

40 Te Awamutu Amateur Radio Club
Physical Address: 509/1 Mutu Street, Te Awamutu 2400
Postal Address: C/- 509/1 Mutu Street, Te Awamutu 2400
Branch Callsign: ZL1CB
President: Bernard Westerbaan ZL1WT
Secretary: Ewen Parsons ZL1LP
Net Information: 3865 kHz on Thursdays at 2000
Contact Person: Ewen Parsons ZL1LP (07) 871-5487 or Bernard Westerbaan ZL1WT (07) 871-7039
E-mail: ewenrp@xtra.co.nz or zl1wtc@paradise.net.nz
Meeting Information: Fourth Wednesday every second month at 1945 Waipa District Council Building Bank Street Te Awamutu

41 Thames (Inc)
Physical address: 503 Sealey Street, Thames
Postal Address: 503 Sealey Street, Thames
Branch Callsign: ZL1DF
President: Bill Scutts ZL1CCY
Secretary: Bruce Steel ZL1AAO
Net Information: 3800 kHz and 145.700 MHz on Sundays at 0900
Contact Person: Bruce Steel
Contact Phone Number: (07) 868 5610. E-mail: bruce.steel@xtra.co.nz
Meeting Information: Quarterly Second Tuesday of February, May, August and November at Thames Civil Defence Rooms, Macky Street, Thames

42 Titahi Bay Amateur Radio Club
Physical Address: Tireti Hall, Tireti Road, Titahi Bay
Postal Address: P.O. Box 50 402, Mana, Wellington 6006
Branch Callsign: ZL2AFV
President: Colin Hopkins ZL2TPX
Secretary: Patrick Herd ZL2UPH
Net Information: 3710 kHz on Sundays at 2000
Contact Person: Mike Burch ZL2AUA
Contact Phone Number: (04) 232-9038. E-mail: zl2afv@hotmail.com
Meeting Information: First Tuesday each month (except January) at 1930
Club website: http://homepages.paradise.net.nz/zl2tpx/zl2afv

43 Waihi and Districts
Physical Address: Williams Street, Waihi
Postal Address: 3 Cuba Street, Waihi 2981
Branch Callsign: ZL1QW
President: Ces Hooker ZL1CES
Secretary: David Bell ZL1AKV
Net information: Thursday 1970 3620 kHz
Contact Person: David Bell or Ces Hooker
Contact Phone Number: (07) 863 9369. E-mail: david-bell@xtra.co.nz
Contact address 3 Cuba Street, Waihi 2981
Meeting Information: First Wednesday each month (except January) at 1930. Ring Secretary for location

44 Matamata Radio Club
Physical Address: Members homes
Postal Address: 74 Tawari Street, Matamata 2271
Branch Callsign: ZL1RF
President: John Rasmussen ZL1AGA
Secretary: Ian Perkins ZL1BFH
Net Information: 3560 kHz on Sundays at 0900
Contact Person: John Rasmussen ZL1AGA
Contact Phone Number: (07) 888-6269
Meeting Information: As required at members homes on the second Wednesday month at 1930

45 Waimarino
In Recess

46 Wairarapa Amateur Radio Club (Inc)
Physical Address: Hood Aerodrome, Manaia Road, Masterton
Postal Address: P.O. Box 860, Masterton 5900
Branch Callsign: ZL2OA
President: Paul London ZL2BEF
Secretary: Ian Stewart ZL2TIS
Net Information: Masterton 680 on Mondays at 2000 except meeting nights and January
Contact Person: Ian Stewart ZL2TIS
Contact Phone Number: (06) 377-0713. E-mail: zl2tisandcontact.net.nz
Meeting Information: Second Monday each month (except January) at 1930

47 Waitara Amateur Radio Club
Physical Address: Manukorihi Park Sports Club, Manukorihi Road, Waitara
Postal Address: C/- L Smart 48 Leslie Street, Waitara 4656
Branch Callsign: ZL2TO
President: Ian Cash ZL2BRA
Secretary: Larry Smart ZL2SM
Net Information: 3666 kHz on Tuesdays at 2000
Contact Person: Larry Smart ZL2SM
Contact Phone Number: (06) 754 7583. E-mail: zl2sm.smart@xtra.co.nz
Meeting Information: First Sunday each month (except January) at 1930

48 Wanganui Amateur Radio Society (Inc)
Physical Address: Stalkers and Hunters Hall, Peat Street, Wanganui
Postal Address: C/- 1 Caversham Road, Wanganui 5001
Branch Callsign: ZL2JA
President: John Love ZL2NAX
Secretary: Mike Newman ZL1BNB
Net Information: Each Tuesday 2000 on 146.900 (Wanganui 690)
Contact Person: Mike Newman ZL1BNB
Contact Phone Number: (06) 344 6830. E-mail: mnewman@clear.net.nz
Meeting Information: First Monday each month (except January), at 1930. If Monday is a public holiday then meeting is generally held on the second Monday

49 Westland
Postal Address: 37 Chapel Street., Greymouth
Branch Callsign: ZL3GY
President: Bob McQuarrie ZL3TY
Secretary: Graham Hay ZL3WMM
Net Information: Westland 695 as contact for club members
Contact Person: Graham Hay ZL3WMM
Contact Phone Number: (03) 768-9499
Meeting Information: First Wednesday each month (except January) at 1930. Meeting held at Electronet Services, Tainui Street, Building, Greymouth

50 Wellington Amateur Radio Club (Inc)
Physical Address: WEMO HQ, Murphy Street, Thorndon, Wellington
Postal Address: P.O. Box 6464, Marion Square, Wellington 6035
Branch Callsign: ZL2WB
President: Mike Kerr ZL2BCW
Secretary: Tony Fletcher ZL2ALJ
Net Information: 3620 kHz on Sundays at 0930
Contact Person: Tony Fletcher ZL2ALJ
Contact Phone Number: (04) 383 8838. E-mail: zl2alj@paradise.net.nz
Meeting Information: Third Tuesday each month (except December) at 1930

51 Eastern Bay of Plenty (Inc)
Physical Address: Waiewe Street, Hillcrest, Whakatane
Postal Address: P.O. Box 2165, Kopeopeo, Whakatane 3080
Branch Callsign: ZL1AIU
President: Murray Evans ZL1SZ
Secretary: Donal Reid ZL1AIF
Net Information: 3722 kHz on Mondays at 1930
Contact Person: Alan McDonald ZL1PI
Contact Phone Number: (07) 308-7740. E-mail: mailto:donal@wave.co.nz
Meeting Information: Second Wednesday each month except January, at 1800—business at 1930

52 Northern Hawkes Bay
In Recess

53 Te Puke Amateur Radio Club (Inc)
Physical Address: Te Puke Holiday Park, State Highway 2
Postal Address: C/- PO Box 10, Te Puke 3070
Branch Callsign: ZL1IB
President: Andrew Race ZL1TAP
Secretary/Treasurer: Syd Rowe ZL1LWR
Net Information: Tauranga 680 on Wednesdays at 2030. 3600 kHz at 0900 on Sundays 438.855 Repeater at 0900 and 1930 on Tuesdays
Contact Person: Syd Rowe ZL1LWR.
Contact Phone Number: (07) 533 1029. E-mail: syd.rowe@xtra.co.nz
Meeting Information: Second Saturday each month at 1330. Clubrooms open each Saturday at 1300 for activities

54 Patea
Postal Address: PO Box 156, Hawera 4800
Branch Callsign: ZL2QF
President: Robin Clarkson ZL2AFE
Secretary: David Robinson ZL2BJI
Net Information: A call on Egmont 705 will get a response
Contact Person: David Robinson ZL2BJI
Contact Phone Number: (06) 278-7486
Meeting Information: Third Monday each month at 1945 at Salvation Army Lounge

55 Waitomo Radio Club
Physical Address: Thomson Avenue, Otorohanga
Postal Address: 15 Frederick Street, Otorohanga 2564
Branch Callsign: ZL1IZ
President: Brian Aspinall ZL1VCR, BJ.Aspinall@xtra.co.nz
Secretary: Ihian Howitt ZL1BZ, ihian@paradise.net.nz
Net Information: 3850 kHz on Mondays at 2000. Waitomo 7375 on Sundays at 0900
Contact Person: Ihian Howitt ZL1BZ
Contact Phone Number: (07) 873-7349. E-mail: BJ.Aspinall@xtra.co.nz
Meeting Information: First Tuesday each month (except January) at 1930. Venue may change—contact Secretary

56 Christchurch West Amateur Radio Club (Inc)
Physical Address: Auburn Park, Upper Riccarton
Postal Address: C/- PO Box 31-095, Ilam, Christchurch 8030
Branch Callsign: ZL3VV
President: Doug Pratt
Secretary: John Walker ZL3IB
Net Information: Each Sunday at 2000 on 147.250
Contact Person: Des Borgfeldt ZL3ACS
Contact Phone Number: (03) 349 9705,. E-mail: borgfeldt@xtra.co.nz
Meeting Information: Fourth Tuesday each month at 1930. "Free n Easy" second Wednesday each month at 1330. Technology Evening and Morse and theory classes every Wednesday "open nights" at 1930

57 Tokoroa (Inc)
Postal Address: PO Box 325, Tokoroa 2392
Branch Callsign: ZL1AQR
President: E. C. Penwarden ZL1TDV
Secretary: B. M. Williamson ZL1BYO
Contact Person: B. M. Williamson
Contact Phone Number: (07) 886-7675
Meeting Information: Third Monday Bi monthly

58 Helensville
In Recess

59 Mangakino
In Recess

60 Taupo
Physical Address: AC Reserve, AC Baths Avenue
Postal Address: C/- 40 Oregon Drive, Taupo 2730
Branch Callsign: ZL1BCO
President: Roger Simmonds ZL1UTW
Secretary: Ray Morison ZL2JE, rmorison@paradise.net.nz
Net Information: Taupo 675 on Mondays at 1930
Contact Person: Graeme Frederick ZL1BU
Contact Phone Number: (07) 378 0553,. E-mail: zl1bu@nzart.org.nz
Meeting Information: First Thursday each month at 1930

61 Central Otago
Postal Address: C/- 4 Parcell Court, Cromwell
Branch Callsign: ZL4OO
President: Peter Leigh ZL2APO
Secretary: Peter Leigh ZL2APO
Net information: 3.660 on Tuesday Nights at 2000
Contact Person: Russell Baird ZL4DJ
Contact Phone Number: (03) 448-9363
Meeting Information: Fourth Thursday each month (except December) at 2000. At Alexandra Fire Station. If not possible then Town and Country Club

62 Reefton-Buller
Physical Address: Buller High School
Postal Address: 9 Archer Street, Westport 7601
Branch Callsign: ZL3RBC
President: Robert Duncan
Secretary: Shirley Bromley
Contact Person: Shirley Bromley
Contact Phone Number: (03) 789-8372. E-mail: hayshirl@hotmail.com
Meeting Information: First Tuesday each second month (except January)

63 Upper Hutt (Inc)
Physical Address: Rural Fire Station, Park Street, Upper Hutt
Postal Address: C/- 35 Matai Road, Raumati South
Branch Callsign: ZL2VH
President: Peter Kidd ZL2BIR
Secretary: Neil Gibbons ZL2TNG
Net Information: Climie 730 anytime
Contact Person: N. M. Gibbons ZL2TNG
Contact Phone Number: (04) 905-5540. E-mail: ngibbons@paradise.net
Meeting Information: Every Friday night at 1930

64 North Otago
Physical Address: CD Headquarters, Severn Street, Oamaru 8901
Postal Address: 45 Ardgowan Road, Oamaru
President: Gary Millar ZL4TA
Secretary: Alan Naish ZL4RB. E-mail: naishs@xtra.co.nz
Net Information: Oamaru 670 on first Monday at 1930
Contact Person: Doug Walker ZL4TDF
Contact Phone Number: (03) 437-1262
Meeting Information: Second Monday each month (except January) at 1930

65 Papakura Radio Club (Inc)
Physical Address: Wellington Park, 1R Great South Road, Papakura
Postal Address: PO Box 72-397, Papakura 1703
Branch Callsign: ZL1VK
President: Richard Gamble ZL1BNQ
Secretary: Geoff Reed ZL1AKY
Morse Administrator and Tester: Dave Johnston ZL1AMN
Net Information: 3755 on Sundays at 0900, 147.325 on Sundays at 0830
Contact Person: Dav Johnston ZL1AMN
Contact Phone Number: (09) 298-9297. E-mail: branch65@nzart.org.nz
Meeting Information: General Meeting first Wednesday each month at 1930. Day meeting fourth Wednesday at 1330. Projects evening second Wednesday
Website: www.qsl.net/zl1vk

66 Auckland VHF Group (Inc)
Physical Address: End of Hazel Avenue (off Dominion Road), Mount Roskill
Postal Address: P.O. Box 10-138, Auckland 1030
Branch Callsign: ZL1BQ
President: John Dunn ZL1JD
Secretary: QuentinForeman ZL1QF
Net Information: 6625/900 repeaters every Sunday at 2015
Contact Person: John Dunn ZL1JD
Contact Phone Number: (09) 473-9514. E-mail: zl1bq@qsl.net
Meeting Information: Third Monday each month at 1930. Committee last Monday each month at 1930
Website: www.qsl.net/zl1bq

67 Kawerau Amateur Radio and Hobbies Club
Physical Address: Meetings held in members homes, confirm venue with Secretary
Postal Address: C/- 34 Cobham Drive, Kawerau 3083
Branch Callsign: ZL1KW
President: Barry Liddle ZL1CAY
Secretary: Bev Osborne ZL1OS
Contact Person: Ray Dyer ZL1AIS
Contact Phone Number: (07) 323-6199. E-mail: rayncarol@orcon.net.nz
Meeting Information: Third Tuesday each month at 1930 except December and January. Meeting date and time changes occasionally to suit members

68 North Canterbury Amateur Radio Club (Inc)
Physical Address: Rangiora-Woodend Road, Woodend
Postal Address: C/- P.O.Box 14, Woodend 8255, North Canterbury
Branch Callsign: ZL3RR
President: Ann Fraser ZL3TNT
Secretary: Colin G. Rowe ZL3COL
Net Information: 3605 kHz on Monday before regular club meeting at 2030 also 6975 repeater on Sundays at 1900
Contact Person: Colin G. Rowe ZL3COL
Contact Phone Number: (03) 313 2303. E-mail: colingr@xtra.co.nz
Meeting Information: Second Thursday of each month (except December and January) at 1930

69 Kapiti Amateur Radio Society (Inc)
Physical Address: Cnr Aorangi Road and Tutanekai Street, Paraparaumu
Postal Address: P.O. Box 166, Paraparaumu 6010
Branch Callsign: ZL2KB
President: Geoffrey Cooke ZL2TGC
Secretary: Dennis Young ZL2BFI
Net Information: Kapiti 685 on Sundays at 1730
Contact Person: Dennis Young ZL2BFI
Contact Phone Number: (04) 902-1773. E-mail: zl2bfi@nzart.org.nz
Meeting Information: First Wednesday each month (except January) 2000 and Saturdays from 0930 until 1100. Beginners classes—contact the Secretary

70 Feilding Radio Club
Postal Address: 19 Campbell Street, Fielding 5600
Branch Callsign: ZL2AMR
President: John Poulsen ZL2TCA
Secretary: Mike Prior
Contact Person: Paul Harris ZL2WOG
Contact Phone Number: (06) 323-5524
Meeting Information: Second Monday each month in ATC rooms Chamberlain Street

71 Rodney Amateur Radio Club (Inc)
Physical Address: Warkworth Scout Den, Shoesmith Street, Warkworth
Postal Address: PO Box 587 Warkworth 1241
Branch Callsign: ZL1ROD
President: Jim Goodsir ZL1BJI
Secretary: Irving Spackman ZL1MO
Net Information: 147.300 on Thursdays at 1930
Contact Person: Irving Spackman ZL1MO QTH as per Call Book
Contact Phone Number: (09) 626-4886 (with Answerphone)
Meeting Information: Third Thursday each month except December at 1930 in Scout Den as above

72 Opotiki Amateur Radio Club (Inc)
Physical Address: St Stephens Church Committee Room Opotiki
Postal Address: C/- PO Box 383, Opotiki 3092
Branch Callsign: ZL1BY
President: Jim Jones ZL1JRJ
Secretary: Bill West ZL1BIL
Contact Person: Steve Winder ZL1ACE
Contact Phone Number: (07) 315-7333. E-mail: zl1bil@xtra.co.nz
Meeting Information: February (AGM), March, May, July, September, November, general meeting on Mondays at 1900 (if a public holiday then held second Monday of that month)

73 Northern Wairoa Electronics Club

74 Wellington VHF Group (Inc)
Physical Address: Hutt Theatre School Hall, Birch Street, Lower Hutt
Postal Address: PO Box 12 -259, Thorndon, Wellington
Branch Callsign: ZL2WA
President: Doug Ingham ZL2TAR
Secretary: Peter Cobb ZL3TCE
Contact Person: Cliff Walker ZL2ALY
Contact Phone Number: (04) 904-8991. E-mail: zl2wa@clear.net.nz
Meeting Information: Last Thursday each month (except December) at 1945

75 Queenstown
In Recess.

76 Kaikoura Radio Club
Postal Address: 42 Churchill Street, Kaikoura 8280
President: H. G. H. Bryant ZL3GB
Secretary: R. J. Godfrey ZL3DR
Net Information: Kaikoura 690 on Saturdays at 1930
Contact Person: Bill Jackson ZL3PZ
Contact Phone Number: (03) 319-5981, Fax: (03) 319-7081
Meeting Information: As required

77 Te Aroha and Districts Radio Club (Inc)
Physical Address: Civil Defence HQ, Rewi Street, Te Aroha
Postal Address: 12 Emerson Street, Te Aroha 2971
Branch Callsign: ZL1BSM
President: Kevin Morton ZL1TEA
Secretary: Morris Beale ZL1ANF
Contact Person: Brian McConnochie ZL1BWK
Contact Phone Number: (07) 884-8189. E-mail: mbeale@paradise.net.nz
Meeting Information: Third Tuesday in February, April, July and October at 2000 but may be changed to suit members. Contact Secretary

78 Far North Districts Amateur Radio Club (Inc)
Postal Address: PO Box 4, Awanui, Far North 0552
Branch Callsign: ZL1FND
President: Bob Banks ZL1AUI
Secretary: Russell Shackleton ZL1BQK
Net Information: 147.100 on Mondays at 1900
Contact Person: Eric Manning ZL1GE
Contact Phone Number: (09) 406 7059. E-mail: eric.man@xtra.co.nz
Meeting Information: Listen to Branch net for details

79 Howick and Districts Radio Club (Inc)
Physical Address: Keall House 31 Uxbridge Road, Howick
Postal Address: C/- 1/1 Castlemaine Close Howick, Auckland 1705
Branch Callsign: ZL1TB
President: Alan Scott ZL1AAS
Secretary: Vern Morris ZL1TDG
Net Information: 3820kHz and 146.575 on Sundays at 0900
Contact Person: Vern Morris ZL1TDG
Contact Phone Number: (09) 271-1301. E-mail: zl1tdg@nzart.org.nz
Meeting Information: First Wednesday each month (except January) at 1930

80 Hibiscus Coast Amateur Radio Club (Inc)
Physical Address: 479/1 Whangaparoa Road, Whangaparoa
Postal Address: 479/1 Whangaparoa Road, Whangaparoa 1463
Branch Callsign: ZL1FU
President: David Wadham ZL1WD
Secretary: John Bell ZL1FB
Net Information: 3620 kHz on Sundays at 0830. 147.300 on Thursdays 1930 NZST
Contact Person: Eric Mancer ZL1BDO
Contact Phone Number: (09) 424-8083. E-mail: emancer@family.net.nz
Meeting Information: Fourth Monday each month at 1930 (AGM second Monday in December)

81 Waikato VHF Group
Postal Address: PO Box 606, Hamilton 2015
Branch Callsign: ZL1IS
President: Noel Rowe ZL3GR
Secretary: Gavin Petrie ZL1UAB
Net Information: Waikato 695 on Sundays at 2030
Contact Person: Gavin Petrie ZL1UAB
Contact Phone Number: (07) 843 0326. E-mail: gavinwp@ihug.co.nz
Meeting Information: February, May, August and November, last Sunday at 1330. Listen to net for details

82 Southern Wairarapa ARC
Physical Address: St Johns Building, Lyon Street, Featherston 5952
Postal Address: C/- 3 Strasbourge Street, Martinborough 5954
Branch Callsign: ZL2SWR
President: C. I. Sutherland ZL2LL
Secretary: R. A. Pearce ZL2GJ
Net Information: Continuously on Southern Wairarapa 715
Contact Person: R. A. Pearce ZL2GJ
Contact Phone Number: (06) 306-9798
Meeting Information: Informal as required

83 Raglan Amateur Radio Club
Physical Address: 25 Bay View Road
Postal Address: 25 Bay View Road, Raglan 2051
Branch Callsign: ZL1CCT
President: Jack Sanders ZL1AUV
Secretary: Fred Gilbert ZL1FG
Net Information: 7085kHz on Saturdays at 0830 NZT
Contact Person: Fred Gilbert ZL1FG
Contact Phone Number: (07) 825-8018. E-mail: fred.g@paradise.net.nz
Meeting Information: As required

84 Bay of Islands Amateur Radio Club
Physical Address: 28 Butler Road, Kerikeri
Postal Address: 28 Butler Road, Kerikeri 0470
Branch Callsign: ZL1BOI
President: Nick Wallace ZL1IU
Secretary: Mike Thompson ZL1BWV
Net Information: 146.750 on Wednesday at 1930
Contact Person: Nick Wallace (09) 401-9042 or Ian Wilson (09) 407-8901.
E-mail: zl1IU@xtra.co.nz
Meeting Information: Bi-monthly

85 Mercury Bay (Inc)
Postal Address: 10 Harbour Lights Terrace, RD2 Whitianga 2856
Branch Callsign: ZL1MBB
President: ZL1AMZ
Secretary: ZL1CWN
Contact Person: Brian ZL1CWN or Tom ZL1AMZ
Contact Phone Number: (07) 866-2346. E-mail: zl1cwn@paradise.net.nz
Meeting Information: Second Wednesday each month at 1900

86 Suburban Amateur Radio Club (Inc)
Physical address: Musick Memorial Radio Station, Musick Point, Bucklands Beach, Auckland
Postal address: C/- PO Box 163060, Lynfield, Auckland
Branch Callsign: ZL1ZLD, Museum Group ZL1ZLF, South Auckland Repeater Group ZL1HK
President: Ian Walker ZL1BFB
Secretary: Ann Walker ZL1TRH
Contact Person: Ian Walker ZL1BFB
Contact Phone Number: Telephone/Fax (09) 626-7188. E-mail: zl1trh@nzart.org.nz or zl1bfb@xtra.co.nz
Meetings: General/Social, second Sunday each month 1400, Musick Memorial Radio Station (phone Secretary for venue details.)

Affiliated Branches

Canterbury Amateur Radio Development Society Inc
Postal address: PO Box 21-188, Edgeware, Christchurch 8030
Branch Callsign: ZL3CAR
President: Mike Stubberfield ZL3MJS
Secretary: Lorna Allan ZL3AAZ
Net Information: 1920 hours on 720 repeater
Contact person: Mike Stubberfield ZL3MJS
Contact Phone Number: (03) 355 4501. E-mail: mstubberfield@clear.net.nz
Meetings: Third Wednesday of each month (except January) at Science Alive, Moorhouse Avenue, Christchurch

NEW ZEALAND AMATEUR RADIO STATIONS
ZL1 CALL-SIGNS

ZL1AA Auckland Branch NZART (Inc.), see Branch Directory.
ZL1AAA Gordon, B. D., 11 Siota Crescent, Kohimarama, Auckland 1005.
ZL1AAB Cardy, J., 28 City View Terrace, Birkenhead, Auckland 1310.
ZL1AAE Yearsley, J. K., Boat Harbour Road, RD1, Whitianga 2856.
ZL1AAF Walker, R. L., 128 Buffalo Beach Road, Whitianga 2856.
ZL1AAH Backhouse, R. B., PO Box 61, Omapere, Northland 0452.
ZL1AAI De Jong, J. W., PO Box 79-311, Royal Heights, Auckland 1230.
ZL1AAJ Williams, H. J., 30 Halberg Street, Glenfield, Auckland 1310.
ZL1AAK Stephens, C. H. L., 56 Karaka Street, Takapuna, Auckland 1309.
ZL1AAM Scott, P. L., 25 Chatsworth Crescent, Pakuranga 1706.
ZL1AAN Faulkner, H. T., 8 Kapai Road, Devonport, Auckland 1309.
ZL1AAO Steel, L. B., 503 Sealey Street, Thames 2801.
ZL1AAQ Palmer, W. J., 9 Tennyson Street, Morningside, Whangarei 0101.
ZL1AAS Scott, A., 25a Rodney Road, Howick 1705.
ZL1AAU Elley, Bryce, 26 Richmal Street, Waihi 2981.
ZL1AB North Shore Branch, see Branch Directory.
ZL1ABB Beck, Bryce, 49 Haigh Access Road, RD 4, Albany 1311.
ZL1ABC Biddle, R. R., C/- Wesley College, PO Box 58, Pukekohe 1800.
ZL1ABD Wise, F. B., C/- Royal Heights Rest Home, 154 Royal Road, Massey, Auckland 1008.
ZL1ABE Details unknown.
ZL1ABG Details unknown.
ZL1ABL Dale, A. J., 61 Rodney Street, Wellsford 1242.
ZL1ABM Humphrey, M. L. G., 1009 Tararu Road, Thames 2801.
ZL1ABN Reay, M. J. F., 16 Priscilla Crescent, Hamilton 2001.
ZL1ABP Rutter, K. L., 707 Richardson Road, Hillsborough, Auckland 1004.
ZL1ABQ McGill, A. K., 15 Manapouri Place, Pakuranga 1706.
ZL1ABR Ward, B. J., 2/16 Bingara Place, Mangere, Auckland 1701.
ZL1ABS Sheffield, M. J., 176 Albany Highway, Albany, Auckland 1311.
ZL1ABW Waters, A B, 28 Seaside Avenue, Waterview, Auckland 1007.
ZL1ABX Dukes, J. R., 102 Awaruku Road, Torbay, Auckland 1311.
ZL1ABZ Johnson, I. P., 15 Muirend Avenue, Tokoroa 2392.
ZL1AC Western Suburbs Radio Club, see Branch Directory.
ZL1ACD Coakley, A. H., 31 Johnston Road, Kawakawa 0291.
ZL1ACE Winder, S. P., 138 Wellington Street, Opotiki 3092.
ZL1ACG Caldwell, E. G., 23 Clyma Place, Massey, Auckland 1008.
ZL1ACH ten Velde, R. J. M., 8 Matipo Place, Tokoroa 2392.
ZL1ACJ Turner, R. H., 7 Keiss Street, Blenheim 7301.
ZL1ACK Marshall, R. F., PO Box 6659, Wellesley Street, Auckland 1036.
ZL1ACM Details unknown.
ZL1ACN Messent, D. L., Main Road, PO Box 23, Murupara 3272.
ZL1ACO Grusning, H. N., 28 Ocean Beach Road, Tairua 2853.
ZL1ACT Bate, A. M., Address unknown.
ZL1ACU Details unknown.
ZL1ACV Twiss, D. G. L., PO Box 884, Taupo 2730.
ZL1ACX Rous, B. W., 56 Tamahere Drive, Glenfield, Auckland 1310.
ZL1ACY Billing, C. J., 16 Dobell Road, Whangaparaoa 1463.
ZL1ACZ Williams, B. C., 4 Kay Drive, Blockhouse Bay, Auckland 1007.
ZL1AD Blackett, D. J., 56 Church Street, Northcote, Auckland 1310.
ZL1ADA Baker, J. R. (Mrs), 28 Chorley Avenue, Massey, Auckland 1008.
ZL1ADB Ataya, P. G. E. G., "The Oak", 4204 Great North Road, Henderson, Auckland 1008.
ZL1ADC Meharry, R. G., 111 Clarkin Road, Fairfield, Hamilton 2001.
ZL1ADD Irving, E. B., 26 Dudley Avenue, Huntly 2191.
ZL1ADE Duffy, E. J., 22 Duke Street, Mt Roskill, Auckland 1004.
ZL1ADG Hunt, C. W., 990/1 Bank Street, Te Awamutu 2400.
ZL1ADI Rademacher, C. A., Wrights Road, R.D 2, Albany 1311.
ZL1ADL Wilkins, D. N., 5 Ethel Street, Sandringham, Auckland 1003.
ZL1ADP Medland, F. J., 11 The Lane, Medlands Bay, Great Barrier Island 1236.
ZL1ADQ Lawrence, P., 2/15 Summermist Drive, Northpark, Howick 1705.
ZL1ADS Tibbles, W. J., 19 Kotanui Avenue, Army Bay, Whangaparaoa 1463.
ZL1ADT Orr, K. R. (Dr), PO Box 95-151, Swanson, Auckland 1230.
ZL1ADW Clark, B. E., 88 Lincoln Park Avenue, Massey, Auckland 1008.
ZL1AE Croonen, P. W., 630 Kaipaki Road, RD 1, Ohaupo 2452.
ZL1AEL Stanley, J. W., PO Box 252, Whangarei 0115.
ZL1AET Tse, A. E., PO Box 11-263, Ellerslie, Auckland 1131.
ZL1AF Ogier, I. W., 32 Rangitane Street, Palmerston North 5301.
ZL1AFB Offord, J. L., 43 Queens Road, New Plymouth 4601.
ZL1AFD Osborne, R., PO Box 2098, Tauranga 3015.
ZL1AFE De Renzy, P., Puketutu Road, RD 2, Matamata 2271.
ZL1AFF Fleming, J., 43 Burns Street, Leamington, Cambridge 2350.
ZL1AFJ Phillips, J. F. E., 36 Mt Roskill Road, Mt Roskill, Auckland 1004.
ZL1AFK Details unknown.
ZL1AFM Bellamy, P. R., 36 Eaton Road, Hillsborough, Auckland 1004.
ZL1AFQ Rosan, D. A. R., PO Box 65-147, Mairangi Bay, Auckland 1330.
ZL1AFS Cowley, T. C. M., 850 Beach Road, Waiake, Auckland 1310.
ZL1AFT Walker, K., 28 Darren Crescent, Bucklands Beach, Auckland 1706.
ZL1AFU Murphy, R. J., 19 Litten Road, Howick, Auckland 1704.
ZL1AFV Boyce, A. R., 26 Shakespeare Street, Cambridge 2351.
ZL1AFX Kilsby, M. R., 5 Niagara Crescent, Lynfield, Auckland 1004.
ZL1AFY Details unknown.
ZL1AFZ McLean, J. P., George Road, R.D 3, Pahiatua 5470.
ZL1AG Giles-Pain, A, PO Box 36-201, Northcote, Auckland 1330. ZL1AG@north-islander.com
ZL1AGA Rasmussen, J. W., 65 Smith Street, Matamata 2271.
ZL1AGC Passau, K. M., PO Box 628, Papakura, Auckland 1730.
ZL1AGD Deng, A. G., 65 Orams Road, Manurewa, Manukau City 1702.
ZL1AGG Bycroft, P. E., 253 Shirley Road, Papatoetoe, Auckland 1701.
ZL1AGK Details unknown.
ZL1AGN Campbell, M. H., Fencourt Road, RD 1, Cambridge 2351.
ZL1AGP Horwood, Hannah, 233 King Street, Whakatane 3080.
ZL1AGR Cotton, J. K., Villa 177, Acacia Cove, 127 Wattle Farm Road, Wattle Downs, Manurewa 1702.
ZL1AGS Collins, P. E., 185 Victoria Street, Cambridge 2351.
ZL1AGT Taylor, E. R., 18 The Circle, Whangaparaoa 1463.
ZL1AGV Dixon, L. N., 18 Koru Street, Mangere Bridge 1701.
ZL1AGW McDonald, D. F., 6 Margaret Place, Ha Hei, RD 1, Whitianga 2856.
ZL1AGX Clark, A. T., 1/9 Eltham Road, Kohimarama, Auckland 1005.
ZL1AGY Easton, J. A., RD 9, Wheki Valley Hill, Whangarei 0121.
ZL1AGZ Delaney, J. D., 41 Birdwood Road, Swanson, Auckland 1008.
ZL1AH Wightman, J. D., 99c Eighth Avenue, Tauranga 3001.
ZL1AHD Franklin, M. J., PO Box 252, Albany 1330.
ZL1AHK Tester, W., 48 Pulham Road, Warkworth 1241.
ZL1AHL McLellan, G. L., 1 Icarus Place, Rotorua 3201.
ZL1AHM Bell, A. D., 182 Ocean Road, Ohope 3085.
ZL1AHN Milford, R. T., 6/43 Shakespeare Road, Milford, Auckland 1309.
ZL1AHO Sykes, R. J., 263 Shirley Road, Papatoetoe 1701.
ZL1AHP Greendale, L. S., 22 School Road, Paihia, Postal: PO Box 301, Paihia 0252.
ZL1AHT Buckland, I. D., 490 Coatesville Highway, RD 3, Albany 1311.
ZL1AHW Hoban, R. P., 462 Kaitemako Road, RD 5, Welcome Bay, Tauranga 3021.
ZL1AHX King, Andrew, 2/106 Victoria Street, Onehunga, Auckland 1006.
ZL1AHZ Kidd, B. F., Addison Road, Parua Bay 0240.
ZL1AI Badman, R. G., 146 Totara Drive, Pukete, Hamilton 2001.
ZL1AIA Baylis, M. B., 1 Munro Street, Onerahi, Whangarei 0101.
ZL1AIB Morris, N. C., 375 Hukanui Road, PO Box 12-357, Hamilton 2030.
ZL1AIC Dewar, Dave, 6 Syntax Place, Conifer Grove, Takanini 1702.
ZL1AIF Reid, D. M., 123 McCoy Road, RD 2, Opotiki 3092.
ZL1AIH McCormack, R. K. F., 181 Ararimu Valley Road, Waimauku 1250.
ZL1AII McFarlane, I. R., 18 Hakarimata Road, Ngaruawahia 2171.
ZL1AIJ Blake, C. B., Blackwell Drive, Tryphena, Great Barrier Island 1236.
ZL1AIK Lewis, P. J., 3/17 Lowery Avenue, Mt Roskill, Auckland 1004.
ZL1AIM Kebble, S. W., 228, State Highway 2, Bethlehem, Tauranga 3001.
ZL1AIP Parker, T. H., 18 Darlington Street, Ngatea 2852.
ZL1AIR Armstrong, B. E., Main Road, PO Box 282, Mangonui 0557.
ZL1AIS Dyer, R. J., 16 Blundell Avenue, Kawerau 3075.
ZL1AIU Eastern Bay of Plenty Branch NZART (Inc), see Branch Directory.
ZL1AIV Tilsley, D. G., 8/17 Mangawhero Road, Matamata 2271.
ZL1AIX Robinson, W. J., 7 Joseph Banks Terrace, Remuera, Auckland 1005.
ZL1AJ Culloty, H. F. J., 361/1 Budden Road, Pokuru, RD 5, Te Awamutu 2400.
ZL1AJD Krippner, F. J., Te Rore, RD 6, Te Awamutu 2400.
ZL1AJE Ansell, M. E., Address unknown.
ZL1AJF Krippner, J. A., Te Rore, RD 6, Te Awamutu 2400.
ZL1AJI Jeffries, A. W., 70 Woodglen Road, Glen Eden, Auckland 1007.

ZL1AJK Wood, W. B., 8 William Souter Street, Forrest Hill, Auckland 1309.
ZL1AJL Johnston, Carol, 6 Syntax Place, Conifer Grove, Takanini 1702.
ZL1AJM Morgan, J. G., 26 Harold Avenue, Kaikohe, Northland 0400.
ZL1AJN Holmes, W. S., RD 1, Waiuku 1852.
ZL1AJQ Hogan, A. H., PO Box 1497, Taupo 2730.
ZL1AJR Chapman, R., 39a West Tamaki Road, Glen Innes, Auckland 1006.
ZL1AJS Barker, J. A., PO Box 14, Leigh 1241.
ZL1AJT Details unknown.
ZL1AJU Barnard, B. F., 91 Melanesia Road, Kohimarama, Auckland, PO Box 25-197, St Heliers, Auckland 1130.
ZL1AJV Irving, P. J., 4 Scott Avenue, Mangere Bridge, Auckland 1701.
ZL1AJW Grant, R. C., 15 Scott Road, Stanmore Bay, Whangaparaoa 1463.
ZL1AJX Cox, J. B., 4/95 Wheturangi Road, Greenlane, Auckland 1005.
ZL1AJY Barratt, M. P., 6 Brussells Place, Birkenhead, Auckland 1310.
ZL1AK Mitchell, B. A., 52 Factory Road, Waharoa 2272.
ZL1AKB Gillard, M. L. N., 22 Stewart Street, Whakatane 3080.
ZL1AKC Crook, B. W., 3 Icarus Place, Rotorua 3201.
ZL1AKD Clay, W. V., C/- Mrs S Hendriks, 77 Fitzroy Street, Papatoetoe, Auckland 1701.
ZL1AKE Exeter, M. N. L., 89a Morrin Road, Panmure, Auckland 1006.
ZL1AKI Tait, C. V., 11 Sycamore Court, Greenwood Park, Tauranga 3001.
ZL1AKJ Studholme, D. L., 22 Anita Avenue, Mt Roskill, Auckland 1004.
ZL1AKK Ellison, C. L., 582/2 Mahoe Street, Te Awamutu 2400.
ZL1AKL Eagle, E. H., 35 Argyll Road, Greerton, Tauranga 3001.
ZL1AKM Details unknown.
ZL1AKO Otto, R. H., Rangitane, RD 1, Kerikeri 0470.
ZL1AKS Wigley, J. N., 43 Ocean View Road, Northcote, Auckland 1310.
ZL1AKT Follett, M. S., 39 Edmund Road, Rotorua 3201.
ZL1AKU O'Donoghue, D. J., 5 Rata Street, Mount Maunganui 3002.
ZL1AKV Bell, D. C., 3 Cuba Street, Waihi 2981.
ZL1AKW Horne, D. W. J., 3 Vine Avenue, Maungatapu, Tauranga 3001.
ZL1AKX Passau, Merv, Awanui Rise, PO Box 628, Papakura 1730.
ZL1AKY Reed, Geoff, 510 Great South Road, Papakura 1703.
ZL1AL Benton, T. J., Address unknown.
ZL1ALA Halden, J. E., Opua Road, RD 2, Ngatea 2852.
ZL1ALC Details unknown.
ZL1ALD Smith, D. W., 110 Douglas Street, Whakatane 3080.
ZL1ALE Johnston, Aola, 2/29 Manse Road, Papakura 1703.
ZL1ALG Osborne, G. J., 34 Cobham Drive, Kawerau 3075.
ZL1ALH Lochmann, I. G., 19 Hillview Street, Ngaruawahia 2171.
ZL1ALI Lee, A. B. (Ms), C/- 58 Saddleback Rise, Murrays Bay, Auckland 1311.
ZL1ALK Reed, Celia, 510 Great South Road, Papakura 1703.
ZL1ALM Mutch, J. T., 100b Appenzell Drive, Whakatane 3080.
ZL1ALN Duncan, K. G., 2 Marsh Avenue, Milford, Auckland 1309.
ZL1ALO Giles, P. M., 13 Ozich Avenue, Te Atatu South, Auckland 1008.
ZL1ALQ Deverick, E. I., 1 Flat B Jellicoe Road, Rothesay Bay, Auckland 1311.
ZL1ALR Kay, S. R., 1a Burwood Crescent, Remuera, Auckland 1005.
ZL1ALV Ussher, R. R., Address unknown.
ZL1ALW Williamson, J. G., 70 Ngataringa Road, Devonport, Auckland 1309.
ZL1ALX Gubb, G. K., 4/278 Shirley Road, Papatoetoe 1701.
ZL1ALZ Balsillie, John, RD 1, Pokeno 1872.
ZL1AM Whangarei Amateur Radio Club (Inc.), see Branch Directory.
ZL1AMC Zwies, O. H., 232 King Street, Invercargill 9501.
ZL1AME Crook, F. G., 17 Hanlon Crescent, Devonport, Auckland 1309.
ZL1AMF Gosling, K. F., 3 Merton Avenue, Glenfield, Auckland 1310.
ZL1AMH Hughes, J. S. P., 11b Owhata Road, Rotorua 3201.
ZL1AMI Jamieson, R. A., Oropi Road, RD 3, Tauranga 3021.
ZL1AMJ Saunders, J. R., 116 Lynbrooke Avenue, Blockhouse Bay, Auckland 1007.
ZL1AMM Murphy, R. E., 2/14 Cradock Street, Avondale, Auckland 1007.
ZL1AMN Johnston, Dave, 2/29 Manse Road, Papakura 1703.
ZL1AMO Wright, R. W., 28 Chorley Avenue, Massey, Auckland 1008.
ZL1AMQ Male, F. G., 67 Waipuna Road, Mt Wellington, Auckland 1006.
ZL1AMR Lindsay, I. M., 1/131 Botany Road, Howick, Auckland 1705.
ZL1AMT Moore, D. A., 2 Kanuka Way, Albany, Auckland 1311.
ZL1AMU Jury, R. B., Cove Road, Waipu 0254.
ZL1AMW Wallace, Alan, 14 Acacia Crescent, Hamilton 2001.
ZL1AMY Fletcher, I. G., 248 East Coast Road, Takapuna North, Auckland 1311.
ZL1AMZ Glendenning, T., 16 Meadow Drive, Whitianga 2856.
ZL1AN Bold, G. E. J., 15 Kauri Road, Birkenhead, Auckland 1310.
ZL1AND Turner, A. B., 7 Acmena Lane, Pakuranga, Auckland 1706.
ZL1ANE Gingles, J. C., Te Maika Road, Ngunguru, RD 3, Whangarei 0121.
ZL1ANF Beale, W. M., 12 Emerson Street, Te Aroha 2971.
ZL1ANH Hunt, Graeme, 30 Grande Vue Road, Kawaha Point, Rotorua 3201.
ZL1ANI Bell, K. A., 62b Eden Terrace, Kamo, Whangarei 0101.
ZL1ANJ Ellis, J. M., 3 Hawera Road, Kohimarama, Auckland 1005.
ZL1ANL Smith, I. G., 20 Kirk Street, Whakatane 3080.
ZL1ANM Barnett, Neil, 4/92 Cadness Street, Northcote, Auckland 1310.
ZL1ANN Hotson, A. (Mrs), 11 Boss Road, Kawerau 3075.
ZL1ANP Parsons, Norma, 509/1 Mutu Street, Te Awamutu 2400.
ZL1ANU Details unknown.
ZL1ANX Reid, A. A., 62a Puke Road, Paeroa 2951.
ZL1ANY Pearce, S. G., C/- Anaesthetics Dept, Whangarei Area Hospotal, Whangarei 0101.
ZL1AO Allison, J. N., PO Box 185, Taumarunui 2600.
ZL1AOA Whitney, J. R., 35b Wallis Street, Raglan 2051.
ZL1AOB Harrop, G. N., 8 Waingaro Road, Ngaruawahia 2171.
ZL1AOC Henderson, H. R. T., 11 Chesley Place, Bucklands Beach, Auckland 1706.
ZL1AOD Byrnes, Ces, 31 Rosehill Drive, Papakura 1703.
ZL1AOE Gillgren, S. J., 7 Graham Road, Gisborne 3801.
ZL1AOH Stewart, M. I., 4 Page Place, Hamilton 2001.
ZL1AOI Trethowen, V. G., 1/22 Blockhouse Bay Road, Avondale, Auckland 1007.
ZL1AOL Shacklock, F. W., 14 Paparoa Road, Howick 1705.
ZL1AOM Brown, M. W., 290 Douglas Avenue, Te Awamutu 2400.
ZL1AON Edginton, K. S., 69 East Street, Hamilton 2001.
ZL1AOO Holley, W., 16 Ashlynne Avenue, Papatoetoe, Auckland 1701.
ZL1AOP Frewin, H. G., 42 Walmsley Road, Waihi 2981.
ZL1AOT Margison, I., 2/44 Pembroke Crescent, Glendowie, Auckland 1005.
ZL1AOV Matheson, Joyce, Mata Road, RD 1, Kohukohu 0570.
ZL1AOW Frankham, D. W., 3a Kaurilands Road, Titirangi, Auckland 1007.
ZL1AOX Ashley, I. T., 5 Willoughby Avenue, Howick 1705.
ZL1AOY Young, I., 15 Glenfell Place, Mt Eden, Auckland 1003.
ZL1AOZ Mackay, W. J. (Dr), 49 Gladstone Road, Parnell, Auckland 1001.
ZL1AP Details unknown.
ZL1APD Richardson, W. J., 57 Esk Street, Tauranga 3001.
ZL1APH Dittmer, C. R., Address unknown.
ZL1API Hendrie, J. G., Address unknown.
ZL1APK Turvey, G. R., RD 2, Opotiki 3092.
ZL1APM Bowers, J., 7 Sandford Place, Hamilton 2001.
ZL1APP Haysmith, C. A., RD 1, Kaukapakapa 1250.
ZL1APQ Crook, N. W. W. G., 16a Sherwood Road, Onerahi, Whangarei 0101.
ZL1APS Browne, N. H., 27 Vivian Drive, Omokoroa Beach, Tauranga 3051.
ZL1APT Jones, Barry, Flat 2, Naenae Court,, 185/9 Naenae Road, Lower Hutt 6009.
ZL1APU Sowerby, B. W., 42 Cheriton Road, Howick 1704.
ZL1APV Fisher, J. R., 35 Shoreham Street, Blockhouse Bay, Auckland 1007.
ZL1APZ Franks, R. A., Scotsmans Valley Road, RD 1, Morrinsville 2251.
ZL1AQ Rouse, Gordon, 1 Mears Road, Hamilton 2001.
ZL1AQC Sinclair, V. A., 40b Frobisher Street, Island Bay, Wellington 6002.
ZL1AQG Bacica, Anneti, PO Box 81, Kaitaia 0500.
ZL1AQJ Wrigley, J. S., 5 Derwent Street, Western Springs, Auckland 1002.
ZL1AQR Tokoroa Branch NZART (Inc), see Branch Directory.
ZL1AQS Sexton, J. E., 508 Paparimu Rd, RD 3, Papakura 1730.
ZL1AQU Boyer, C. A., 311 Pakuranga Road, Pakuranga 1706.
ZL1AQV Barclay, S. N., PO Box 8618, Symonds Street, Auckland 1035.
ZL1AQX Toomey, A. H., 39a MacLeans Road, Bucklands Beach, Auckland 1704.
ZL1AQY Knaggs, G. R., 31 Henderson Crescent, Tauranga 3001.
ZL1AR Walsh, J. S., Maungatapu Road, Glenfalls, RD 1, Morrinsville 2251.
ZL1ARB Smith, P. L., 56 Hobsonville Road, West Harbour, Auckland 1008.
ZL1ARD Duncan, L. E., 14 Cowley Drive, Temple View, Hamilton 2050.
ZL1ARF Wallis, B. S., 9 Verran Road, Birkenhead, Auckland 1310.
ZL1ARG Millar, R. W. K., Mullet Point, RD No 1, Warkworth 1241.
ZL1ARH Rowe, P. R., 48a Paraonui Drive, Tokoroa 2392.
ZL1ARK Simpson, Anne, 49 George Point Road, Onerahi, Whangarei 0101.
ZL1ARL Neno, M. R., 226 Dickson Road, Papamoa Beach 3003.
ZL1ARM Matthews, J. C. H., 1 Mayfair Crescent, Mairangi Bay, Auckland 1311.
ZL1ARN Brown, J. T., 32 English Street, Hamilton 2001.
ZL1ARQ Dunhill, I. H., 19 Goring Road, Sandringham, Auckland 1003.
ZL1ART Allen, A. W. (Ms), Main Road, RD 1, Broadwood, Northland 0571.

ZL1ARV Details unknown.
ZL1ARW Forsyth, J. T., 21 Chipping Dale, Mangere Bridge, Auckland 1701.
ZL1ARX Wright, P. W. J., 8 Kinder Street, Taupo 2730.
ZL1ARY Chandler, R. W., 36 Eastern Beach Road, Bucklands Beach 1704.
ZL1ARZ Gibbs, F. I., 22 Fairview Place, Te Puke 3071.
ZL1AS Litten, R. J., 400 Onemana Drive, Onemana, Whangamata 2982.
ZL1ASD Bayley, E., 11 Trimmer Terrace, Papatoetoe 1701.
ZL1ASK Klinac, T. J., 45 Central Avenue, Papatoetoe, Auckland 1701.
ZL1ASL Rimmer, K. S., 173 River Road, Kawerau 3075.
ZL1ASN Adams, R. E. V., 21 Ashby Avenue, St Heliers, Auckland 1005.
ZL1ASP Abbott, R. F., 6 Longview Drive, Papamoa 3003.
ZL1ASR Rowe, A. S., Unit 1/23 Birman Close, Bucklands Beach, Auckland 1706.
ZL1ASU Little, D. C., 25 Marellen Drive, Red Beach, Orewa 1461.
ZL1ASV Phillips, R. L., 27a Seaview Road, Milford, Auckland 1309.
ZL1ASY McGaughey, J. D., RD 1, Russell 0255.
ZL1ASZ Anderson, A. N., 3 McKenzie Road, Mangere Bridge, Auckland South 1701.
ZL1AT Redmond, N. P., 199 Waimumu Road, Massey, Auckland 1008.
ZL1ATE Babich, A. T., 20a Motu Place, Mt Wellington, Auckland 1006.
ZL1ATI Ward, C. J., 30 Eskdale Road, Birkdale, Auckland 1310.
ZL1ATJ Cowell, R. E., 14 Bosnyak Drive, Te Atatu South, Auckland 1008.
ZL1ATK Millar, T. R. C., 25 Moana Crescent, PO Box 34, Mangakino 2391.
ZL1ATL Park, R. J., 205 Hape Road, Thames 2801.
ZL1ATS Hoyle, R. P., 54 Waitete Road, Waihi 2981.
ZL1ATU Hayhurst, K. W., 204 Mill Street, Thames 2801.
ZL1ATW Meenagh, M. B., 223 Te Tomo Street, Te Awamutu 2400.
ZL1ATX Details withheld by request of callholder.
ZL1AU Scouse, P. N., 17 Calluna Crescent, Totara Heights, Manukau City 1702.
ZL1AUA Wilson, B. E., 10a Jaemont Avenue, Te Atatu South, Auckland 1008.
ZL1AUB Nicholson, J. E., 30 Alfred Street, Fairfield, Hamilton 2001.
ZL1AUE Details unknown.
ZL1AUG Street, G. H., 4 Emory Drive, Takanini, Auckland 1702.
ZL1AUH Murray, N. V., Counter Mail, Waiuku Post Office, Waiuku 1852.
ZL1AUI Banks, R. S., "Argile", Peria Valley Road, RD 2, Kaitaia 0500.
ZL1AUJ Warman, R. W., 6 Hospital Road, PO Box 135, Te Kopuru 0356.
ZL1AUK Hill, M. J., 30b Jefferson Place, Brookfield, Tauranga 3001.
ZL1AUL Loiacono, Vito, 11 Sheridan Lane, Freeman's Bay, Auckland 1001.
ZL1AUM Maddock, C. N., 75a Methuen Road, Avondale, Auckland 1003.
ZL1AUS Insley, J. F., 1 Tudor Rise, Whakatane 3080.
ZL1AUU White, J. H. S., 104 Third View Avenue, Beachlands, Auckland 1705.
ZL1AUV Sanders, J. G., 28 Denny Hulme Drive, Mount Maunganui 3002.
ZL1AUW Wooller, A. M., 40 Powrie Street, Glenfield, Auckland 1310.
ZL1AUX Greaves, G. J., 40 Windoma Circle, Papatoetoe, Auckland 1701.
ZL1AUY Burkinshaw, D. E., 13 Williams Avenue, Morrinsville 2251.
ZL1AUZ Hawkins, C. R., 56 Pine Avenue, Hamilton 2001.
ZL1AV Tremayne, D. T., Spencer Road, Lake Tarawera, PO Box 1231, Rotorua 3215.
ZL1AVE Atchinson, D. R., 783 Great South Road, Papatoetoe 1701.
ZL1AVG Johnson, P. R., 22 Huia Street, Rotorua 3201.
ZL1AVH Alder, S. H., 195 St Heliers Bay Road, St Heliers, Auckland 1005.
ZL1AVI Kyle, B. V., Address unknown.
ZL1AVJ Harper, M. J., 34 Tuatara Drive, Kamo, Whangarei 0101.
ZL1AVK Ruffell, W. L., 8 St Aubyn Street, Devonport, Auckland 1309.
ZL1AVL Manning, A. J., 17 Fairmont Street, Ngaruawahia 2171.
ZL1AVO Robertson, K. S., 249b Edmonton Street, Te Atatu South, Auckland 1008.
ZL1AVQ Auckland University Amateur Radio Club, C/- Auckland University Students Association, Private Bag 92-019, Auckland 1020.
ZL1AVR Rowe, J. P., 100 Totara Close, Thames 2801.
ZL1AVU Garlick, C. W., 4 James Place, Papakura 1703.
ZL1AVV McFadyen, E. J., 39 Kahu Street, Rotorua 3201.
ZL1AVW Wing, B. E., Pungaere Road, RD 2, Kerikeri 0470.
ZL1AVY Tennent, D. R., 1/151 Farquhar Road, Glendene, Auckland 1008.
ZL1AVZ Ryall, B. J., 195 Te Atatu Road, Te Atatu South, Waitakere City, Auckland 1008.
ZL1AW Walker, A. N., Crane Road, RD 1, Kamo 0121.
ZL1AWA Voss, A., 28 Matipo Street, Taupo 2730.
ZL1AWF Sexton, E. A., 490 Paparimu Rd, RD 3, Papakura 1730.
ZL1AWL Holland, A. D., 66 Old Railway Road, RD 2, Kumeu 1250.
ZL1AWP Dennison, A. S., 132 Evans Road, Papamoa, Mt Maunganui 3003.
ZL1AWR Goodacre, H. W., Pickering Road, RD 3, Hamilton 2021.
ZL1AWU Taylor, R. J., C/- Cheryl Tomich, Challenge Realty, PO Box 26-006, Epsom North, Auckland 1030.
ZL1AWW Welford, G. H., 8b Walpole Avenue, Manurewa 1702.
ZL1AWX Jillings, M. A., 71 Hutchinson Road, Howick, Auckland 1705.
ZL1AWZ Leitch, T. G., 38 David Street, Morrinsville 2251.
ZL1AX Stevens, K F, PO Box 30-312, Wellington Mail Centre, Wellington 6332.
ZL1AXA Burgess, G. W., 34 Booralee Avenue, Howick, Auckland 1705.
ZL1AXB Murdoch, P. J., 183 Glengarry Road, Glen Eden, Auckland 1007.
ZL1AXC Details unknown.
ZL1AXE Spackman, M. L. (Rev), The Vicarage, 20 Church Street, Devonport, Auckland 1309.
ZL1AXF McRae, E. D., 4 Nottingham Road, Onerahi, Whangarei 0101.
ZL1AXG Woods, M. H., 20 Rochester Street, Wilton, Wellington 6005.
ZL1AXI Foote, J. R., PO Box 4092, Kamo, Whangarei 0131.
ZL1AXL Roberts, B. L., 1/23 Martin Avenue, Remurea, Auckland 1005.
ZL1AXN Anderton, T. E., 87 Woolfield Road, Papatoetoe, Auckland 1701.
ZL1AXO Bareman, K., 17 Cellarmans Street, Te Atatu North, Postal: PO Box 45-055, Te Atatu, Auckland 1230.
ZL1AXS Griffin, P. J., 44 Waimarie Road, Whenuapai Village, Auckland 1008.
ZL1AXT De Luca, B. C., 20 Gwilliam Place, Freemans Bay, Auckland 1001.
ZL1AXU Orchard, M. P., PO Box 190, Whakatane 3080.
ZL1AXV Richardson, Ken, 4 Redcrest Avenue, Papakura 1703.
ZL1AXX Smith, R. I., 538 Don Buck Road, Massey, Auckland 1008.
ZL1AXY Hjorring, B. G., 48 Smythe Road, Henderson, Auckland 1008.
ZL1AXZ Sample, K. W., Address unknown.
ZL1AY Allen, C. W., RD 1, Broadwood, Northland 0571.
ZL1AYA D'Arcy, A. E., 2/41 East Coast Road, Milford, Auckland 1309.
ZL1AYB Bowkett, J. A., PO Box 17-218, Karori, Wellington 6033.
ZL1AYC Shipman, N. J., 56 Dale Road, Raumati South, Wellington 6010.
ZL1AYD Details unknown.
ZL1AYE Midwinter, G. E. D., Otaika Valley Road, RD 10, Whangarei 0121.
ZL1AYH Wallace, A. D., C/- J. A. Wallace, PO Box 1226, Gisborne 3815.
ZL1AYM Tennant, C. H., 8 McLeod Street, Weymouth, Auckland 1702.
ZL1AYN Lowe, Bob, 42a Armagh Terrace, McIlwaine Place, Marton 5460.
ZL1AYQ Maindonald, J. D., PO Box 702, Rotorua 3215.
ZL1AYT Valois, David, 46 McDowell Crescent, Northcote, Auckland 1310.
ZL1AYV Dingley, M. J., 2139 Great North Road, Avondale, Auckland 1007.
ZL1AYW Speedy, S. L., 4a Windermere, 6 The Promenade, Takapuna, Auckland 1309.
ZL1AYY Candy, F. A. (Mrs), 19a Claude Road, Manurewa, Auckland 1702.
ZL1AZ Brown, M. A., C.M.B 103, Owhango, Taumarunui 2656.
ZL1AZB Young, R. D., 7 Sturgess Terrace, Te Kuiti 2500.
ZL1AZE Miller, B. D., 67 Hornsey Road, Melrose, Wellington 6003.
ZL1AZF Powell, W. L., 2/28 Coronation Road, Glenfield, Auckland 1310.
ZL1AZP Brooke-Anderson, B. B., 2 Glenelg Road, Red Beach, Hibiscus Coast 1461.
ZL1AZT Clare, I. K., 294 Ross Road, Whakamarama, RD 6, Tauranga 3021.
ZL1AZU Nelson, B. C., 59 Percy Street, Warkworth 1241.
ZL1AZX Armstrong, J. B., RD 1, Tirohanga, Opotiki 3092.
ZL1AZZ Darrall, P. G., 11 Irene Crescent, Goodleigh, Hamilton 2001.
ZL1BA Witting, Erik, Kerehunga Road, RD 9, Whangarei 0121.
ZL1BAB Cooper, W. G., 7 Hartfield Rise, Papakura 1703.
ZL1BAC Hilliar, S. W., 25/47 The Strand, Takapuna, Auckland 1309.
ZL1BAD Knowles, R. E., 412 Onewhero - Tuakau Bridge Road, RD 2, Tuakau 1892.
ZL1BAG McLennan, E. D., 47 Te Toki Road, Palm Beach, Waiheke Island 1240.
ZL1BAJ Candy, B. R., 19a Claude Road, Manurewa, Auckland 1702.
ZL1BAM Milligan, J. W., 88 Tiraumea Drive, Pakaranga, Auckland 1706.
ZL1BAO Martin, H. R., 26 Dundee Place, Blockhouse Bay, Auckland 1007.
ZL1BAP Parr, J. B., 9 Willow Way, Pakuranga, Auckland 1706.
ZL1BAR Martensen, J. E., 34 Lawrence Street, Herne Bay, Auckland 1001.

ZL1BAS Morgan, O. J., 1 Waitete Road, Waihi 2981.
ZL1BAU Bakulich, J. V. M., Mt Wesley Road, RD 1, Dargaville 0300.
ZL1BAV Vial, S. B., 57b Simon Ellice Drive, Glenfield, Auckland 1310.
ZL1BAW Coleman, R. E., PO Box 6063, Tauranga 3030.
ZL1BAY Tarlton, B. M., 8 North Road, PO Box 81, Kaitaia 0500.
ZL1BAZ Rickard, B. A., 33 Bayliss Road, RD 3, Te Puke 3071.
ZL1BB Bunting, A. B., 3a Hillary Heights Avenue, Henderson, Auckland 1008.
ZL1BBC Details unknown.
ZL1BBH Green, A. T., 98 Albert Street, Hamilton East 2001.
ZL1BBK Allan, G. D., 44 Omaha Drive, RD 6, Warkworth 1241.
ZL1BBP Peace, K. I., Whangapoua Beach, RD, Coromandel 2851.
ZL1BBQ Maxwell, S. G., 26 Tuhaere Street, Orakei, Auckland 1005.
ZL1BBR Chamberlin, P. C., PO Box 131, Clevedon 1730.
ZL1BBS Kilpatrick, G., 157a Long Drive, St Heliers, Auckland 1005.
ZL1BBU Medley, E. J., 10 Grosmont Terrace, Otumoetai, Tauranga 3001.
ZL1BBW Williams, K., Ody Road, Taurikura, RD 4, Whangarei 0121.
ZL1BBZ Holt, R., 10 Collingwood Road, Waiuku 1852.
ZL1BC Bomar, C. P., Briam Trail Farm, RD 2, Kaiwaka 0582.
ZL1BCA Batkin, B. W., Batkin Road, Hunua, RD 4, Papakura 1730.
ZL1BCC Crandall, S., Papatotara Coast Road, RD 1, Tuatapere 9655.
ZL1BCE Eckett, J. A. B., 23 Pinedale Place, Henderson, Auckland 1008.
ZL1BCH Davis, Terry, 1/115 Great South Road, Manurewa, Auckland 1702.
ZL1BCI Sinclair, N. S., 29 Meadowland Street, Tauranga 3001.
ZL1BCL Lewis, V. A., 38b Burwood Road, Matamata 2271.
ZL1BCN Messent, A. J. (Mrs), Main Road, PO Box 23, Murupara 3272.
ZL1BCO Taupo Branch 60, see Branch Directory.
ZL1BCV White, J. W., 633b Kamo Road, Kamo, Whangarei 0101.
ZL1BCW Webber, H. C., 6 Brabant Street, Whakatane 3080.
ZL1BD Wilson, A., Waingaro Road, RD 1, Ngaruawahia 2171.
ZL1BDA Wright, C. C., 3 Livingstone Street, Milford, Auckland 1309.
ZL1BDB Trevena, M. R., 1 Talga Court, Conifer Grove, Takanini 1702.
ZL1BDD Bowman, M. J., 8 Morice Place, Browns Bay, Auckland 1311.
ZL1BDE Visser, P., 4 Kauri Crescent, Matamata 2271.
ZL1BDF Petherick, G. R., 84 Aroha Avenue, Morningside, Auckland 1003.
ZL1BDG Mogford, F. L., 74 Buchanan Street, Opotiki 3092.
ZL1BDH Latham, G. W., 5a Halberg Crescent, Whakatane 3080.
ZL1BDI Draper, N., 61 Churchill Road, Murrays Bay, Auckland 1311.
ZL1BDJ Monk, Ena, 23 Matipo Avenue, Rotorua 3201.
ZL1BDK Phillips, K. A., 15 Shanley Crescent, Waiuku, Auckland 1852.
ZL1BDL Details unknown.
ZL1BDM Hansen, A. F., PO Box 809, Whangarei 0115.
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ZL1BDP James, J. R., PO Box 471, Taupo 2730.
ZL1BDQ Wilkins, S. J., C/- Counter, NZ Post, Warkworth, Auckland 1241.
ZL1BDS Details unknown.
ZL1BDT Ngakuru, N. H., 31 Wihongi Street, Kaikohe 0400.
ZL1BDW West, B. D., 67 Woodlands Road, Opotiki 3092.
ZL1BDY Seakins, J. M., 99 Exmouth Road, Northcote, Auckland 1310.
ZL1BDZ Hoban, Clarrie, 462 Kaitemako Road, RD 5, Welcome Bay, Tauranga 3021.
ZL1BE Collins, P., 395 East Coast Road, Mairangi Bay, Auckland 1311.
ZL1BEB Williams, P., Kaihere, RD 1, Ngatea 2852.
ZL1BEG Begg, J. W. K., 27a Shanaway Rise, Northcote, Auckland 1310.
ZL1BEJ McCabe, B. R., 130 Takahe Road, Titirangi, Auckland 1007.
ZL1BEK McTurk, P. T. R., 40 Silverton Road, Waihi 2981.
ZL1BEL Lees, B., C/- 11 Notley Street, Westmere, Auckland 1002.
ZL1BEM Lockwood, D. C., 7 Adams Street, Waihi 2981.
ZL1BEN Doggett, George, C/- 46 Glenvista Place, Glenfield, Auckland 1310.
ZL1BEP Sharpe, N. R., Inlet Road, Kerikeri 0470.
ZL1BES Details unknown.
ZL1BEU Jamieson, L. I. D., 122 Ngunguru Road, RD 3, Whangarei 0121.
ZL1BEX Wilson, A. L. G., 16 Rahiri Road, Mt Eden, Auckland 1003.
ZL1BEY Smart, J. B., 157 Rodney Street, Wellsford, North Auckland 1242.
ZL1BEZ Miller, P. G., 2 Downing Street, Chartwell, Wellington 6004.
ZL1BF Sturmey, Neil, 42 Alton Avenue, Northcote, Auckland 1310.
ZL1BFB Walker, Ian, 51 Caronia Crescent, Mt Roskill, Auckland 1004.
ZL1BFD Potts, G. C., 169 Alfriston Road, Manurewa 1702.
ZL1BFE Harland, J. C., 9 Papanui Street, Tokoroa 2392.
ZL1BFH Perkins, I. M., 74 Tawari Street, Matamata 2271.
ZL1BFK Frakes, M. C., 29 Riverside Drive, Waiuku 1852.
ZL1BFM Andrews, T. I., 249 Main Road, Tairua 2853.
ZL1BFN Mathew, J. C. H., PO Box 234, Blenheim 7315.
ZL1BFS Birt, K. D., PO Box 1134, Gisborne 3815.
ZL1BFY Donaldson, D. L., 80 Woolfield Road, Papatoetoe 1701.
ZL1BFZ Robertson, D. J., 29c Youngs Road, Papakura 1703.
ZL1BG Grumwald, J. B., RD 3, Tokerau Beach, Kaitaia 0500.
ZL1BGA Martin, G. K. (Mrs), 26 Dundee Place, Blockhouse Bay, Auckland 1007.
ZL1BGB Glover, D. R., 5 Wyman Place, Pakuranga 1706.
ZL1BGD Marr, Lance, 22 Swan Crescent, Pakuranga, Auckland 1706.
ZL1BGE Whitwell, G. R., 3 Grace Street, Matata, RD 4, Whakatane 3080.
ZL1BGH George, L. H., 65 King Street, Opotiki 3092.
ZL1BGI McCarthy, A. C., 1b Burden Avenue, Wainuiomata 6008.
ZL1BGK Gordon, K. G., 117 Cashmere Avenue, Khandallah, Wellington 6004.
ZL1BGS East, T. A., Rotongaro Road, RD 2, Huntly 2191.
ZL1BGU Felt, B., Address unknown.
ZL1BGV Roberts, M. J., 19 Canaandale Drive, Flagstaff, Hamilton 2001.
ZL1BGW Maude, R. de M., Address unknown.
ZL1BHD Wright, S. W., 130 James Street, Whakatane 3080.
ZL1BHE Matthews, J. F., 26 Ocean Vew Road, Northcote, Auckland 1310.
ZL1BHF Sloan, W. J., 20 Acorn Street, Royal Oak, Auckland 1003.
ZL1BHG Robinson, I. A. S., Ostrich Farm, RD, Pukekohe 1800.
ZL1BHH Ferguson, M. E., 5b Terrace Avenue, Mount Maunganui 3002.
ZL1BHJ Dekker, J., 17 Velma Crescent, Hamilton 2001.
ZL1BHQ Powell, J. F., 47 Becroft Drive, Forrest Hill, Auckland 1309.
ZL1BHS Deverell, H. C., 44 Mackesy Road, Whangarei 0101.
ZL1BHT Newcombe, B. R., 20b Fourth Avenue, Tauranga 3001.
ZL1BHU Watson, A. G., 204a Valley Road, Mount Maunganui 3002.
ZL1BHV Davis, W. H., 55 Pihanga Street, Taupo 2730.
ZL1BHW Parkinson, M. A., 23c Eason Street, Rotorua 3201.
ZL1BHY Young, C. R., 1 Aotearoa Terrace, Murrays Bay, Auckland 1311.
ZL1BI Freeman, Shirley, 236a Scenic Drive, Titirangi, Auckland 1007.
ZL1BIB Hookham, C. R., 2/1006 Beach Road, Torbay, Auckland 1311.
ZL1BIC Byrnand, J. L., 5 Te Anau Place, Tikipunga, Whangarei 0101.
ZL1BID Davis, E. T., 13 Dundee Place, Blockhouse Bay, Auckland 1007.
ZL1BIG Biggins, A. J., House 24, Falls Estate Village, 94 Boundary Road, Tikipunga, Whangarei 0101.
ZL1BIK McKechie, K. H., 13 Cron Avenue, Te Atatu South., PO Box 69-051, Glendene, Auckland 1230.
ZL1BIL West, W. J., Appleton Road, PO Box 383, Opotiki 3092.
ZL1BIP Bingham, L. H., Walker Road East, PO Box 72, Katikati 3063.
ZL1BIQ Puffett, K. H., 51 McKean Avenue, Manurewa 1702.
ZL1BIT Davy, N. C., Chatham Avenue, Albany, RD 3, Auckland 1311.
ZL1BIV Garrett, J. W., 20 First View Avenue, Beachlands, Auckland 1705.
ZL1BIW Ward, L., 60 Ranfurly Street, Dargaville 0300.
ZL1BIX Soppet, D. A., 4a Ruarangi Road, Mt Albert, Auckland 1004.
ZL1BIZ Henry, Elva, 27 McRae Road, Mt Wellington, Auckland 1006.
ZL1BJ Breach, J., Omokoroa Road, Tauranga 3021.
ZL1BJA Hendriksen, R. H. E., RD 5, Wellsford 1242.
ZL1BJB Beale, D. J., PO Box 148, Drury, Auckland 1730.
ZL1BJC Orchard, Lin, PO Box 190, Whakatane 3080.
ZL1BJE Appleby, W. M., 8 Brightside Road, Whangaparaoa, Hibiscus Coast 1463.
ZL1BJF Henderson, A. R., 322 St Heliers Bay Road, St Heliers, Auckland 1005.
ZL1BJI Goodsir, J. W., 24 Te Kapa Place, Snells Beach, Warkworth 1241.
ZL1BJJ Morris, T. J., 38 Strathmore Street, Matua, Tauranga 3001.
ZL1BJL Williams, C., Stokes Road, RD 2, Cambridge 2351.
ZL1BJM Cain, M. C., 20 Sayegh Street, St Heliers, Auckland 1005.
ZL1BJN Schlef, W. K., 13 Roslyn Road, Mt Wellington, Auckland 1006.
ZL1BJO Wright, W O, 12 Syme Crescent, Kawerau 3075.
ZL1BJP Parkinson, D. J., 2 Upland Street, Brookfield, Tauranga 3001.
ZL1BJT Dougan, J. K., 35 Tunis Road, Panmure, Auckland 1006.
ZL1BJU Thompson, N. K., 11 Homestead Place, Glenview, Hamilton 2001.
ZL1BJZ Farmer, J. B. S., 88 Ngapuhi Road, Remuera, Auckland 1005.
ZL1BK Details unknown.
ZL1BKA McIntosh, G. S., 4 Alexander Avenue, Maraetai, Auckland 1705.
ZL1BKD Busch, Colin, PO Box 372, Warkworth 1241.
ZL1BKF Marshall, O. H., C/- Matapaia Lodge Rest Home, 7 Tui Terrace, Tairua, via Thames 2853.
ZL1BKG Wilson, T. G., 53 Tirimoana Road, Te Atatu, Auckland 1008.

ZL1BKI Salmond, A. R., 2/9 Tomintoul Place, Howick 1705.
ZL1BKJ Sandlant, P. W., 17 Mayfair Crescent, Mairangi Bay, Auckland 1311.
ZL1BKL Lister, Marion, 7 Sunnyview Avenue, Cockle Bay, Howick, Auckland 1705.
ZL1BKM Engel, F. W., PO Box 6528, Wellesley Street, Auckland 1036.
ZL1BKN Codlin, J. K., 8 Edgeware Road, West Harbour, Auckland 1008.
ZL1BKO Harris, J. B., Velden, RD 1, Richmond 7031.
ZL1BKP Searle, K. A., 58 Gordon Street, Gisborne 3801.
ZL1BKQ Adams, C. W., 104b John Downs Drive, Browns Bay, Auckland 1311.
ZL1BKU Davidson, B. J., 72 Monarch Avenue, Glenfield, Auckland 1310.
ZL1BKX Rodgers, A. E., PO Box 19-006, Avondale, Auckland 1230.
ZL1BKY Rankin, A. N., 90 Hastings Road, Mairangi Bay, Auckland 1311.
ZL1BKZ Henry, R. I., 27 McRae Road, Mt Wellington, Auckland 1006.
ZL1BL Huntly Branch 17 Amateur Radio Club, see Branch Directory.
ZL1BLB Churcher, B. R., 80 Hepburn Road, Glendene, Auckland 1001.
ZL1BLC Morris, T. N. J., 10 Sylvania Crescent, Lynfield, Auckland 1004.
ZL1BLD Ward, M. T., PO Box 66, Paihia 0252.
ZL1BLE Details unknown.
ZL1BLI Ockleston, E. W., 25 Killarney Street, Takapuna, Auckland 1309.
ZL1BLK Elliott, K. L., 10 Jackson Street, Island Bay, Wellington 6002.
ZL1BLQ Salmons, R. J., 2 Townhead Crescent, Tauranga 3001.
ZL1BLR Fish, Len, 14 Willow Avenue, Hannah's Bay, Rotorua 3201.
ZL1BLS Smith, J. B., 13 Selwyn Avenue, Titirangi, Auckland 1007.
ZL1BLT Alderwick, Graham, 16 Foster Crescent, Belmont, Lower Hutt 6009.
ZL1BLY Goodbrand, J. A., 4a Braintree Street, Kamo, Whangarei 0101.
ZL1BLZ Tunnicliffe, G. W., 16 Wilding Avenue, Northcote, Auckland 1310.
ZL1BM Molloy, B. L., 460 Great South Road, Huntly 2191.
ZL1BMA Grey, G. R., 15 Tatyana Place, Royal Heights, Waitakere City 1008.
ZL1BMB Moroney, P. R., 12 Pallant Street, Manurewa 1702.
ZL1BMF Musgrave, J. L., Address unknown.
ZL1BMG Slone, J., Thornton Road, RD 1, Cambridge 2351.
ZL1BMH Baker, R. F., 2/18 Tui Glen Road, Birkenhead, Auckland 1310.
ZL1BMN Lethbridge, B. R., PO Box 418, Paihia, Bay of Islands 0252.
ZL1BMP MacMillan, L. P. A., 4/15 Godden Crescent, Mission Bay, Auckland 1005.
ZL1BMQ Long, Alesha, 40 Morningside Road, Whangarei 0101.
ZL1BMS Simmonds, B. M., 363 Cobham Drive, Hamilton 2001.
ZL1BMT Haultain, A., 131 Riverside Drive, Whakatane 3080.
ZL1BMV Walker, V. L., 51 Kings Road, Paihia 0252.
ZL1BMW Lowry, M. R., Lowry Road, Bombay, Auckland 1850.
ZL1BMX Greenaway, W. P., 8 Stewart Place, Hamilton 2001.
ZL1BMZ Padgett, A. B., 22 Finnerty Avenue, Howick, Auckland 1705.
ZL1BN Northern DX Association, C/- Murray Woodfield, ZL1CN, 72 Salamanca Road, Sunnynook, Auckland 1309.
ZL1BNA Marr, W. R. G., C/- NZMCA Mail Drop Service, PO Box 72147, Papakura 1730.
ZL1BNB Newman, M. D., 30 Nikau Street, Wanganui 5001.
ZL1BND Dowling, B. N., 47 Gray Avenue, Mangere East, Auckland 1701.
ZL1BNG Orton, N. J., 32 Orchard Avenue, Enderley, Hamilton 2001.
ZL1BNH Murphy, P. M., 153 Oaklands Road, RD 1, Papakura 1730.
ZL1BNI Brant, P. A., 41 Regent Street, Papatoetoe 1701.
ZL1BNJ Pedersen, W. J., 56b Union Street, PO Box 404, Opotiki 3092.
ZL1BNK Painting, F. J., 26 Greenacres Drive, Kawakawa 0291.
ZL1BNL Schrickel, H. J. E., 8 Macpherson Street, Remuera, Auckland 1005.
ZL1BNM Larcombe, D. C., 5 McMillan Place, Howick, Auckland 1704.
ZL1BNN Cazalet, Robert, 19 Halberg Street, Papakura 1703.
ZL1BNO Twiname, M. H., 2/4 Burt Road, Mt Wellington, Auckland 1006.
ZL1BNP Were, B. J., 28 Lachlan Drive, Dinsdale, Hamilton 2001.
ZL1BNQ Gamble, Richard, 19a Chiania Place, Howick 1705.
ZL1BNW Collin, J. V., 65 Paine Street, Judea, Tauranga 3001.
ZL1BNX Toft, T. B., 19b Ngapuhi Road, Remuera, Auckland 1005.
ZL1BNY Shakes, D. B., 4 Herbert Street, Takapuna, Auckland 1309.
ZL1BNZ Clough, D. L. W., 5 Kelly Street, Rotorua 3201.
ZL1BOA Wigg, J. D., 42 Deep Creek Road, Torbay, Auckland 1311.
ZL1BOE Muir, C. B., PO Box 54-228, Bucklands Beach, Auckland 1730.
ZL1BOF Urquhart, G. A., 9 Four Trees, Howick 1705.
ZL1BOG Donnelly, D. R., 14 Seon Place, Birkenhead, Auckland 1310.
ZL1BOI Bay of Islands Amateur Radio Club, see Branch Directory.
ZL1BOK Rowntree, R. J., 400 Hillsborough Road, Hillsborough, Auckland 1004.
ZL1BOM Glasgow, M. R., 124 Grange Road, Tauranga 3001.
ZL1BON Bonnington, L. M., PO Box 75, Kaukapakapa 1250.
ZL1BOP Emery, N, 10 Charmaine Road, Torbay, Auckland 1311.
ZL1BOQ Duffy, D. B. H., PO Box 1034, Papakura 1730.
ZL1BOR McNamara, Lesley, 32 Galileo Street, PO Box 8, Ngaruawahia 2171.
ZL1BOS Williams, J. B., Kainui Road, RD 1, Taupiri 2171.
ZL1BP Harris, W. F. H., 80 Roberts Road, Te Atatu South, Auckland 1008.
ZL1BPA Corin, T. G., PO Box 11-018, Ellerslie, Auckland 1131.
ZL1BPB Smith, R. A., 37 Kensington Road, Waihi 2981.
ZL1BPC Martin, F. B., 223 Bellevue Road, Tauranga 3001.
ZL1BPF Wilcox, H. J., 64 Taylor Road, Mangere Bridge, Manukau City 1701.
ZL1BPI Ronke, B. R., Weston Lea Drive, RD 2, Hamilton 2021.
ZL1BPJ Christensen, R. A., 2 Ainswork Road, RD 6, Te Puna, Tauranga 3021.
ZL1BPK Junge, A. G., 128 Stanley Avenue, Te Aroha 2971.
ZL1BPM Browne, Lorraine, 27 Vivian Drive, Omokoroa Beach, Tauranga 3051.
ZL1BPN Johnson, E. A., 11 Kowhai Park Road, Maunu, Whangarei 0101.
ZL1BPP Wilkins, D. J. H., 12 Valdese Rise, Browns Bay, Auckland 1311.
ZL1BPQ Nettleingham, F. J., Matahui Road, Katikati 3063.
ZL1BPU Greenman, M., 94 Sim Road, Karaka, RD 1, Papakura 1730.
ZL1BPX Ansley, B. K., 3/21 Broadway, Picton 7372.
ZL1BQ Auckland VHF Group (Inc), see Branch Directory.
ZL1BQA Doell, E. D., 11 Sandspit Road, Waiuku 1852.
ZL1BQC Woolf, P. H., 2 Bourbon Terrace, Karori, Wellington 6005.
ZL1BQD Runciman, R. J., 36 Cardiff Road, Pakuranga, Auckland 1706.
ZL1BQE Dix, K., 91 East Tamaki Road, Papatoetoe 1701.
ZL1BQF Ryan, L. J., 12 Twin Wharf Road, Herald Island, Auckland 1008.
ZL1BQI Milne, A. W., 27a Bramley Drive, Omokoroa Beach, Tauranga 3051.
ZL1BQK Shackleton, R. V., 8 Rongopai Place, Kaitaia 0500.
ZL1BQL Robinson, L. K., Lot 4, 46 Pulham Road, Postal: PO Box 253, Warkworth 1241.
ZL1BQO Hynds, A. G., PO Box 534, Tauranga 3015.
ZL1BQP Buckton, M. D., 84 John Gill Road, Howick, Auckland 1705.
ZL1BQW Armstrong, Christine, McIvor Road, RD 4, Whakatane 3080.
ZL1BQX Clark, L. C., 36a Jubilee Crescent, Whakatane 3080.
ZL1BQY Clayton, C. J., 21 Hope Farm Road, Pakuranga, Auckland 1706.
ZL1BQZ Jarvis, S. A., 45 Olympic Drive, Whakatane 3080.
ZL1BR Reed, W. A., PO Box 441, Whangaparaoa 1463.
ZL1BRB Rompa, A. P. A., 22 Abbotleigh Avenue, Te Atatu, Auckland 1008.
ZL1BRC Ross, S. J., 5 Roxy Terrace, Glendowie, Auckland 1005.
ZL1BRE Kristensen, P., 224 Keenan Road, RD 3, Tauranga 3021.
ZL1BRG Macken, Shirley, 515 Beach Road, Murrays Bay, Auckland 1310.
ZL1BRI Crawford, W., 42 Forest Lake Road, Hamilton 2001.
ZL1BRJ Details unknown.
ZL1BRL Cornwall, P. J., 10 Park Avenue, Northcote, Auckland 1310.
ZL1BRM McElwain, B. R., 2 Ruru Place, Omori, RD 1, Turangi 2751.
ZL1BRN Norgate, M. H., PO Box 774, Whangarei 0115.
ZL1BRO Brenner, B. N., 67 Norwood Road, Bayswater, PO Box 33-112, Takapuna, Auckland 1332.
ZL1BRP Price, P. G., 67 St Andrews Drive, Bethlehem, Tauranga 3001.
ZL1BRQ Macken, C. G. C., 515 Beach Road, Murrays Bay, Auckland 1310.
ZL1BRS Sutherland, S. D., Domain Road, Ettrick, Central Otago 9154.
ZL1BRV Gardiner, P. R., 3 Nyssa Place, Totara Heights, Manurewa 1702.
ZL1BRW Boghurst, A. D., 70 Ostend Road, Ostend, Waiheke Island 1240.
ZL1BRX Bain, Eileen, 58 George Crescent, Buckland, RD 2, Pukekohe 1800.
ZL1BRY Anderson, H. C., 37 Arkles Strand, Arkles Bay, Whangaparoa 1463.
ZL1BRZ Hill, B., 104 Omaha Drive, RD 6, Omaha, Warkworth 1241.
ZL1BS Scott, D. T. S., 237 Metcalfe Road, Ranui, Auckland 1008.
ZL1BSA Rodgers, A. H., 22 Golders Place, Taupo 2730.
ZL1BSB Sutherland, Charlotte, Ruaroa Road, Post Office, Kaitaia 0500.
ZL1BSG Pearce, T. K. L., 23 Aurea Avenue, Pakuranga, Auckland 1706.
ZL1BSM Te Aroha and District Radio Club (Inc), see Branch Directory.
ZL1BSN Wallingford, N., 55 Watling Street, Tauranga 3001.
ZL1BSS Hawker, A. R., 94 Harrington Road, Henderson, Auckland 1008.

ZL1BSV Mace, R. J., 9 Grampian Street, Tokoroa 2392.
ZL1BSW Winger, B. S., PO Box 1532, Whangarei 0115.
ZL1BSX Richmond, M. N., 46 Kings Road, Paihia, Bay of Islands 0252.
ZL1BSY Gerritsen, J., Address unknown.
ZL1BTA Rodgers, Shirley, 19 Cradock Street, Avondale, Auckland 1007.
ZL1BTB Pinfold, Mike, 28 McKenzie Road, Owhata, Rotorua 3201.
ZL1BTF Rogers, L. A., PO Box 79, Kaitaia 0500.
ZL1BTH Details unknown.
ZL1BTI Moroney, Ron, 495 Seaview Road, Onetangi, Waiheke Island 1240.
ZL1BTJ Details unknown.
ZL1BTK Parkinson, R. J., 70 Vandeleur Avenue, Birkdale, Auckland 1310.
ZL1BTL Rowe, N. G., 821 Clevedon-Kawakawa Bay Road, Clevedon, RD 5, Papakura 1750.
ZL1BTM Stratford, N. E., 6 Stratford Drive, Cable Bay, Mongonui, Northland 0557.
ZL1BTP Tubby, Laureen, 470 Papamoa Beach Road, Papamoa 3003.
ZL1BTQ Allen, R., 77 Church Street, Opotiki 3092.
ZL1BTU Orange, L. R., PO Box 40-262, Glenfield, Auckland 1330.
ZL1BTX van der Meulen, F. P., 20 Walter Street, Takapuna, Auckland 1309.
ZL1BTY Maindonald, D. C., 83 Grafton Road, Auckland 1001.
ZL1BTZ Dawe, L. J., 6 Linwood Avenue, Forrest Hill, Auckland 1309.
ZL1BU Frederick, G. I., 96 Lacewood Drive, Taupo 2730.
ZL1BUD Morris, G. A., Weston-Lea Drive, RD 2, Hamilton 2021.
ZL1BUI Willis, R. P., PO Box 3102, Onerahi, Whangarei 0132.
ZL1BUJ Mackey, C. J., RD 1, Kamo, Whangarei 0121.
ZL1BUK Duske, J. S., 11 Pendene Place, Forrest Hill, Auckland 1310.
ZL1BUL Holmes, N. E., 3 Wainoni Avenue, Point Chevalier, Auckland 1002.
ZL1BUP Johnson, Fred, 49 Youngs Road, Papakura 1703.
ZL1BUQ Haigh, W. H., 12 Kauri Loop Road, Oratia, Auckland 1007.
ZL1BUS O'Brien, T. N., Wisemans Road, RD, Waitoa 2973.
ZL1BUT Eggleton, P. W., PO Box 109, Russell 0255.
ZL1BUU Levin, P. C., Gower Road, RD 2, Taupiri 2171.
ZL1BUX Atchinson, Inez, 9/743 Great South Road, Manukau City, Auckland 1702.
ZL1BUY Finn, W. J., McLeods Bay, RD 4, Whangarei 0121.
ZL1BUZ Pont, A., 23 Mount View Drive, Rotorua 3201.
ZL1BV Birch, R. W., Riverside Drive, PO Box 5092, Regent, Whangarei 0130.
ZL1BVA Cullen, J. K., 6 Icarus Place, Rotorua 3201.
ZL1BVB Yuen, S. T. (Mike), 7 Dallas Place, New Windsor Heights, Auckland 1007.
ZL1BVJ Jones, P., 41 Caronia Crescent, Mt Roskill, Auckland 1004.
ZL1BVK Learmond, A. H., 14 Takapu Street, Henderson, Auckland 1008.
ZL1BVM Sharman, R., PO Box 602, Thames 2815.
ZL1BVN van der Hulst, P. W., Matangi Road, RD 4, Hamilton 2021.
ZL1BVO Messenger, G. E., 104 Elizabeth Street, Taupo 2730.
ZL1BVP Chang, J. Y. S., 6 Esperance Road, Glendowie, Auckland 1005.
ZL1BVT Slegh, J. P. (Miss), 2/69a Symonds Street, Royal Oak, Auckland 1006.
ZL1BVV Boylan, R. P., 1 Ceramco Place, Torbay, Auckland 1311.
ZL1BW Woltersdorf, W. G. E., 105 Freyberg Street, Otumoetai, Tauranga 3001.
ZL1BWB Humphrey, G. A., 7 Scott Street, Tauranga 3001.
ZL1BWC Comber, J. P., 21 Castor Place, Rotorua 3201.
ZL1BWD Dobbs, L., Address unknown.
ZL1BWG Details unknown.
ZL1BWH Sheldon, B. R., 16 Carter Street, Mount Maunganui 3002.
ZL1BWI Rose, A., 34 Lyndhurst Road, Te Atatu South, Auckland 1008.
ZL1BWK McConnochie, B. D., 8 Farmer Street, Te Aroha 2971.
ZL1BWP Horn, B. R., 5 Monique Place, Hamilton 2001.
ZL1BWQ Le Cornu, Ethel, Kiwitahi, RD 1, Morrinsville 2251.
ZL1BWS Harris, J. M., 21 Tapper Crescent, Tikipunga, Whangarei 0101.
ZL1BWV Thompson, G. M., Pungaere Road, PDC, Waipapa 0470.
ZL1BWY Collins, S. J., 13 Paratai Crescent, Whangarei 0101.
ZL1BWZ Purser, W., PO Box 5677, Wellesley Street, Auckland 1036.
ZL1BXA Buxton, H. C., 32 Castleton Street, Birkdale, Auckland 1310.
ZL1BXD Vencatachellum, V., 47 Ayton Drive, Glenfield, Auckland 1309.
ZL1BXF Young, B., 44 Toroa Street, Torbay, Auckland 1311.
ZL1BXH Croucher, P. J., 739 Park Road, Te Awamutu 2400.
ZL1BXK Herrold, N. G., Hall Road, RD 1, Waiuku 1852.
ZL1BXM Miers, E. R., RD 1, Dargaville 0300.
ZL1BXO Grut, C. St. C., 97 Tiri Road, Whangaparaoa 1463.
ZL1BXP Walsh, Alison, Kereone, RD 1, Morrinsville 2251.
ZL1BXS Miller, P. G., Gilbert Mair Rise, RD 1, Russell 0255.
ZL1BXT James, C. H., 1037 Heaphy Terrace, Hamilton 2001.
ZL1BXU Davis, L. H., 8 Muritai Street, Taupo 2730.
ZL1BXX Details unknown.
ZL1BY Opotiki Amateur Radio Club, see Branch Directory.
ZL1BYA Martinson, L. R., 31 Riverside Drive, Waiuku 1852.
ZL1BYC Cornish, George, 263 Tanners Point Road, RD 1, Katikati 3063.
ZL1BYD Emmett, G. J., 7 Tupaki Place, Pakuranga, Auckland 1706.
ZL1BYE Thomas, R. S., 54 Lynmore Avenue, Rotorua 3201.
ZL1BYF Werder, K. J., Springdale, RD, Waitoa 2973.
ZL1BYG Morey, E. J., 301 Fairview Road, Te Awamutu 2400.
ZL1BYI Ramsay, I. S., 8 Locke Avenue, Hillsborough, Auckland 1004.
ZL1BYL Alloway, F. R., 311 Barrowclough Road, Whangamata 2982.
ZL1BYO Williamson, B. M., 158 Elizabeth Drive, Tokoroa 2392.
ZL1BYP Kennedy, A. G., 116 Wade River Road, Arkles Bay, Whangaparaoa 1463.
ZL1BYQ Ashmore, R. W., 47 Shelly Beach Road, Ostend, Waiheke Island 1240.
ZL1BYW Details unknown.
ZL1BYY Cartwright, G. T., 6 Haycock Avenue, Mt Roskill, Auckland 1004.
ZL1BYZ Shaw, John, Private Bag, Paerata, Pukekohe 1800.
ZL1BZ Howitt, I. M., 15 Frederick Street, Otorohanga 2564.
ZL1BZA Barnett, Z., 152 Eden Avenue, Te Awamutu 2400.
ZL1BZC Ash, D. E., 51 Foster Avenue, Huia, Auckland 1007.
ZL1BZF Nesfield, J. C., 4/10 Akehurst Avenue, New Lynn, Auckland 1007.
ZL1BZI Newman, D. A., 112 The Avenue, Lynfield, Auckland 1004.
ZL1BZL Ellis, D. G. R., 14b Grant Street, Kamo, Whangarei 0101.
ZL1BZS Chiswell, D. A., The Bullock Track, RD 3, Warkworth 1241.
ZL1BZT Cawte, P. L., 332 Upper HarbouRDrive, Greenhithe, Auckland 1311.
ZL1BZW Rodger, T. R. R., Waipapa Block Road, RD 6, Tauranga 3021.
ZL1BZZ Holmberg, R. E., RD 5, Tauranga 3021.
ZL1CA Trebes, C. E., 11 Lamont Street, Hamilton 2001.
ZL1CAB Whittaker, Joyce, 4 Oak Place, Whakatane 3080.
ZL1CAC Harsant, N. G., 105 Coronation Road, Hillcrest, Auckland 1310.
ZL1CAD Francis, S. D., PO Box 9313, Newmarket, Auckland 1031.
ZL1CAF Francis, M. E. (Mrs), PO Box 9313, Newmarket, Auckland 1031.
ZL1CAG Bott, B., H5/28 Mattland Street, Greerton, Tauranga 3001.
ZL1CAH Meyer, B. F. M., Barrett Road, RD 10, Hamilton 2021.
ZL1CAK Miller, R. N., 106 Chadwick Road, Greerton, Tauranga 3001.
ZL1CAL Badman, N. A., 36a Woodward Street, Taupo 2730.
ZL1CAM McKain, C A, 8 Exeter Street, Mt Maunganui 3002.
ZL1CAP Jones, L. R., 49 Vale Road, St Heliers, Auckland 1005.
ZL1CAQ Gregory, J. H., 29 Ruawai Road, Mt Wellington, Auckland 1006.
ZL1CAS Gates, N. L., 542 Whangaparaoa Road, Whangaparaoa, Auckland 1463.
ZL1CAT Newland, P. J., PO Box 27-038, Mt Roskill, Auckland 1030.
ZL1CAU Earnshaw, M. B., PO Box 100-862, North Shore Mail Centre, Auckland 1333.
ZL1CAV Van Kuilenburg, Philippa, 45 Farrelly Avenue, Owariraka, Auckland 1004.
ZL1CAX Laird, A. G., East Coast Road, RD 8, Nuhaka 4192.
ZL1CAY Liddle, B. D., 3 Hinemotu Avenue, Kawerau 3075.
ZL1CB Te Awamutu Amateur Radio Club, see Branch Directory.
ZL1CBA De Ridder, L. J. (Mrs), PO Box 246, Kerikeri 0470.
ZL1CBB Nortje, F. C., 308 Western Hills Drive, Whangarei 0101.
ZL1CBD Wilson, I. A., 28 Butler Road, Kerikeri 0470.
ZL1CBE Wright, W. A., Main North Road, RD 1, Awanui 0552.
ZL1CBF Finley, C. Britt, 701 S Fillmore Street, Denver, CO 80209, USA.
ZL1CBI Guilford, L. I., 2/35 Prospect Terrace, Milford, Auckland 1309.
ZL1CBN Details unknown.
ZL1CBQ Contesse, L. C., 240 Kiripaka Road, PO Box 7085, Tikipunga, Whangarei 0133.
ZL1CC Birt, D. J., 3 Cheeseman Place, Meadowbank, Auckland 1005.
ZL1CCD Cumin, M. H., PO Box 429, Whangarei 0115.
ZL1CCG Neil, H. P., 14 Bruce Place, Papatoetoe 1701.
ZL1CCI Anderson, Jim, 6 Waitaki Bridge Park, RD 6H, Oamaru 8921.
ZL1CCJ Goodenough, A. R., 754 East Coast Road, Browns Bay, Auckland 1311.
ZL1CCL Amster, M. S., 23 Chamberlain Street, Feilding 5600.
ZL1CCN Pearce, P. B., 7 Marvon Downs Avenue, Pakuranga, Auckland 1706.
ZL1CCP Davis, T. A., 224 Kirkwood Street, Thames 2801.
ZL1CCT Raglan Amateur Radio Club, see Branch Directory.
ZL1CCV Purves, P. S., 63a Tuhikaramea Road, Hamilton 2001.
ZL1CCY Scutts, W. J., 509 Brown Street, Thames 2801.
ZL1CD Details unknown.
ZL1CDE Brickland, R. L., 6 Ascot Place, Te Awamutu 2400.
ZL1CDF Uren, P. E., 4 Frazer Street, Huntly 2191.
ZL1CDJ Kitchen, D. H., Hart Road, RD 3, Hamilton 2021.
ZL1CDM Roberts, D. F., 2/162a King Street, Whakatane 3080.
ZL1CDN Burgess, B. W., PO Box 3007, Ohope 3085.
ZL1CDQ Powell, G. W., 394 Belk Road, RD 1, Tauranga 3021.

ZL1CDT Wilso, S. M. (Mrs), Parakao, PDC, Private Bag, Whangarei 0120.
ZL1CDV Brabant, G. C., 83 Riverside Drive, Whakatane 3080.
ZL1CDW Keel, K. P., Stanley Road, RD 2, Opotiki 3092.
ZL1CDX Fielding, T., 26 Roosevelt Road, Western Heights, Rotorua 3201.
ZL1CDY Walker, R. G., PO Box 124, Kaitaia 0500.
ZL1CE Wilson, G. R. S., 164 Ladies Mile, Ellerslie, Auckland 1005.
ZL1CED Lee, Julian, 54 Lagoon Drive, Panmure, Auckland 1006.
ZL1CEG Details unknown.
ZL1CEJ Francis, W. D., PO Box 9313, Newmarket, Auckland 1031.
ZL1CGA Kane, F. L. D., 8 Lancelot Road, Orewa, Auckland 1461.
ZL1CGB Smith, B. J., 19 Fieldstone Court, Howick, Auckland 1705.
ZL1CH Boyd, H. A., 13a Long Street, Torbay, Auckland 1311.
ZL1CHM Gillen, S. M., 20 Orton Street, Glenfield, Auckland 1310.
ZL1CI Meyer, T. R., 20 Marcel Place, Glenfield, Auckland 1310.
ZL1CIM Details unknown.
ZL1CJ Smith, B. W., Kimihia Road, RD 1, Huntly 2191.
ZL1CJH Head, C. J., 104 Mill Road, RD 2, Pukekohe 1800.
ZL1CJM McIsaac, C. J., Address unknown.
ZL1CK Martin, E. T., 1 Queen Street, RD 1, Kopu, Thames 2821.
ZL1CKM Details unknown.
ZL1CL Leedom, C. A., 22 Windermere Crescent, Blockhouse Bay, Auckland 1007.
ZL1CLA Details withheld by request of callholder.
ZL1CLF Details unknown.
ZL1CLG Caldwell, J., 44 Uxbridge Road, Howick, Auckland 1704.
ZL1CLK Details unknown.
ZL1CLS Details unknown.
ZL1CM Prince, R. P., 79 Armstrong Road, Te Puna, RD 2, Tauranga 3021.
ZL1CMA Ellwood, R., 13 Cross Street, Regent, Whangarei 0101.
ZL1CMC Details unknown.
ZL1CMK Morrison, C. M. K., 63a Church Street, Devonport, Auckland 1309.
ZL1CMR Rowlands, C. M., 6 Montague Place, Onerahi, Whangarei 0101.
ZL1CMY Details unknown.
ZL1CN Woodfield, M. K., 72 Salamanca Road, Sunnynook, Auckland 1309.
ZL1CNB Details unknown.
ZL1CNM Details unknown.
ZL1COD Shearer, J. M., 1/57 Stanley Street, Taupo 2730.
ZL1COP Details unknown.
ZL1COR Trenkner, T. L., 72 Lillis Lane, Coromandel 2851.
ZL1CPL Wiltshire, N. L., 42 Athenree Road, RD 1, Katikati 3063.
ZL1CPZ Roberts, R W, Rhydlydan, Carmarthen, SA327EX, Wales, United Kingdom.
ZL1CQ Details withheld by request of callholder.
ZL1CR Ngakuru, R. A. (Mrs), PO Box 278, Kaikohe 0400.
ZL1CRB Details unknown.
ZL1CRO Aljinovic, S., PO Box 90-910, Auckland 1030.
ZL1CSC Clayton, C. S., 6 SpinnakeRDrive, Te Atatu Peninsula, Auckland 1008.
ZL1CTI Bowman, M. S., 10 Puriri Street, Takapuna, Auckland 1309.
ZL1CU Curtis, N. C., 9 Taraire Road, Titirangi, Auckland 1007.
ZL1CUC Hobson, J., 20 Hobsonville Road, Massey, Auckland 1008.
ZL1CUT Alexander, C. J. (Dr), 49 Richard Farrell Avenue, Remuera, Auckland 1005.
ZL1CV Firman, R. J., 19 Tainui Street, Onerahi, Whangarei 0101.
ZL1CVB Details unknown.
ZL1CVK Wahrlich, Rowan, Whangamarino Road, RD 2, Te Kauwhata 2152.
ZL1CW Hargraves, J. E., 7 Ostend Road, Surfdale, Waiheke Island 1240.
ZL1CWD Cromarty, N. C., 20 Rautara Street, Orakei, Auckland 1005.
ZL1CWN Pope, B. A., 9 Harbour Lights Terrace, RD 2, Whitianga 2856.
ZL1CX Sykora, Peter, PO Box 34 577, Birkenhead, Auckland 1330.
ZL1CY Webster, D. M., 46 Speight Road, Kohimarama, Auckland 1005.
ZL1CYK Stansfield, D., 3 Johnston Place, Welcome Bay, Tauranga 3001.
ZL1CZ Duxbury, T. A., 3/57 Margan Avenue, New Lynn, Auckland 1007.
ZL1DA Davis, Dennis, 6 Brooke Terrace, Cambridge 2351.
ZL1DAA Beaumont, G. S., 6 Keyte Street, Whangarei 0101.
ZL1DAB Williams, G. H., Taihoa Road, RD 4, Whangarei 0121.
ZL1DAC Moates, C. M. G., S.H. Maungatapere, PO Box 102, Maungatapere 0240.
ZL1DAD Swift, G. N., 25 Camellia Avenue, Ruakaka 0250.
ZL1DAJ Cottle, J. N. (Mrs), Rainbow Falls Road, RD 2, Kerikeri 0470.
ZL1DAQ Bradfield, D. S., 24 Selwyn Street, Blenheim 7301.
ZL1DAS Werlberger, B., Miranda Road, RD 1, Pokeno 1872.
ZL1DAV Reid, Dave, 47 Barrack Road, Mt Wellington, Auckland 1006.
ZL1DBI Sheldon, Raewyn, 16 Carter Street, Mount Maunganui 3002.
ZL1DBL Ralston, W. B., 168 Cambridge Road, Tauranga 3001.
ZL1DC Rietz, B. A., PO Box 82, Te Aroha 2971.
ZL1DD Kirkwood, B. J., 66 Cory Road, Palm Beach, Waiheke Island 1240.
ZL1DDL Gunther, U., 27a Temple Street, Meadowbank, Auckland 1005.
ZL1DE Adshead, G. O., 35 Trevola Street, Avondale, Auckland 1007.
ZL1DF Thames Radio Club Branch 41 NZART (Inc), see Branch Directory.
ZL1DG Marsh, B. G., 49 Tranmere Road, Hamilton 2001.
ZL1DH Edwards, J. R., 2 Motuora Road, Manly, Whangaparaoa 1463.
ZL1DI Logan, J. D., 17 Quona Avenue, Hillsborough, Auckland 1004.
ZL1DIY Eckhoff, C., Post Office, Opua, Bay of Islands 0290.
ZL1DJ Hopkins, B. N., 133 Kitchener Road, Waiuku 1852.
ZL1DJB Details unknown.
ZL1DJT Taylor, D. J., 142 Welcome Bay Road, Tauranga 3001.
ZL1DK Karrasch, David, 24 Brooke Road, Papakura 1703.
ZL1DKM Macartney, D., 5 Anderson Street, Putaruru 2371.
ZL1DL Birt, E., 41 Holland Road, Northcote, Auckland 1310.
ZL1DLD Details unknown.
ZL1DLE Portman, Ernie, 6 New Brighton Road, Otahuhu, Auckland 1006.
ZL1DM Grayson, Rob, 25 Rembrandt Place, Papakura 1703.
ZL1DMB Details unknown.
ZL1DQ Allen, Jae (Father), PO Box 227, Te Awamutu 2400.
ZL1DRS Details unknown.
ZL1DRT Details unknown.
ZL1DS Strong, D. G., PO Box 184, Warkworth 1241.
ZL1DSP Pickles, D. S., 207 Clevedon-Takanini Road, Ardmore, Postal: PO Box 124, Clevedon, Auckland 1730.
ZL1DTE Ewen, D. T., 29 Braigh Road, Waipu 0254.
ZL1DU Thomas, A. E., 23 Amethyst Place, Chartwell, Hamilton 2001.
ZL1DV Veale, R. S. (Mrs), 31 Rangitoto Avenue, Remuera, Auckland 1005.
ZL1DW Walpole, D. B., Cordyline Road, Port Waikato, RD 5, Tuakau 1892.
ZL1DWB Details unknown.
ZL1DX Melville, R. A., 33a Koromiko Street, New Lynn, Auckland 1007.
ZL1DYC Heyer, H. L., 88 Brewster Road, RD 1, Tuakau 1892.
ZL1FA Greenaway, A. W., 14 Lindoch Avenue, RD 2, Te Puna 3021.
ZL1FB Bell, J. F. G., 34 Layton Road, Whangaparaoa 1463.
ZL1FC Brott, R. O., Church Road, RD 2, Kaitaia 0500.
ZL1FD Armstrong, D. K., Kaituna Road, RD 9, Te Puke 3071.
ZL1FE Wilson, R. J., 25 May Street, Hillcrest, Hamilton 2001.
ZL1FG Gilbert, W. S., 25 Bay View Road, Raglan 2051.
ZL1FI Power, W. T., 100 Ranolf Street, Rotorua 3201.
ZL1FK Challinor, M. J., 31 Barron Drive, Green Bay, Auckland 1007.
ZL1FL Waterhouse, D. C., 854 No 1 Road, RD 2, Te Puke 3071.
ZL1FMA May, Frank R, 44b Mount View Drive, Rotorua 3201.
ZL1FN Keesing, S., 68 Swann Beach Road, Whangaparaoa, Auckland 1463.
ZL1FND Far North Districts Amateur Radio Club (Inc.), see Branch Directory.
ZL1FON Nobbs, N. A., 85a Bayswater Avenue, Bayswater, Auckland 1309.
ZL1FOX Sinclair, S. C., PO Box 789, Queenstown 9197.
ZL1FP Rumble, Owen W., 48 Parewaitai Court, Papamoa, Tauranga 3003.
ZL1FS Miller, S. P., 47 Monarch Avenue, Hillcrest, Auckland 1310.
ZL1FTL Lewis, F. T., 16C Stanners Road, RD 2, Kerikeri 0470.
ZL1FU Hibiscus Coast Amateur Radio Club (Inc), see Branch Directory.
ZL1FV Runciman, G. J. (Mrs), 36 Cardiff Road, Pakuranga, Auckland 1706.
ZL1FW Rowe, Maxine, PO Box 4013, Mount Maunganui South 3030.
ZL1FX Hyde, K. G., 126b Te Atatu Road, Te Atatu South, Auckland 1008.
ZL1FY Armstrong, G. W., McIvor Road, RD 4, Whakatane 3080.
ZL1FZ Coates, K. J., 2 Bardia Street, Takapuna, Auckland 1309.
ZL1GA Hoy, M. H., 36 Sierra Street, Glendowie, Auckland 1005.
ZL1GB Powell, D. B., Flat 10, 14-16 Mudie Street, Alicetown, Lower Hutt 6008.
ZL1GBJ Jacobi, B. R., 8 Benella Street, Tokoroa 2392.
ZL1GC Craig, G. H., 12 Exploration Way, Whitby, Wellington 6006.
ZL1GD Highet, R. J., 6a Brookfield Road, Te Atatu Peninsula, Auckland 1008.
ZL1GDH Henley, G. D., 4 Carson Street, Tokoroa 2392.
ZL1GE Manning, E., Lake Ngatu, RD 1, Awanui 0552.
ZL1GEK Details unknown.
ZL1GF Fish, J. F., 14 Howard Road, Northcote, Auckland 1310.
ZL1GG Cooper, G. V. (Ms), PO Box 330, Mangonui 0557.
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ZL1GJ Dobbing, S. J., 56 Pohutukawa Drive, Pukete, Hamilton 2001.
ZL1GL Kelly, T. D., 35 Rawhitiroa Road, Kohimarama, Auckland 1005.

ZL1GM Campin, J. W., 117b Golf Road, New Lynn, Auckland 1007.
ZL1GN Beckham, D. S. R., 27 Fifth Avenue, Mt Albert, Auckland 1003.
ZL1GO Seko, A, 204 Bleakhouse Road, Howick, Auckland 1704.
ZL1GP Henderson, R. J., 87 Grange Road, Mt Eden, Auckland 1003.
ZL1GPS Shaw, P. J., 49 Mount View Road, Melville, Hamilton 2001.
ZL1GQ Hardwick, D. B., 482 Period Road, RD 2, Matamata 2271.
ZL1GR Goodwin, L., 43 Taupo Road, Taumarunui 2600.
ZL1GRG Details unknown.
ZL1GS Bell, G. T., 2a Curtis Street, PO Box 8127, Kensington, Whangarei 0130.
ZL1GSG Storz, G., 12 Harbutt Avenue, Mt Albert, Auckland 1003.
ZL1GSM Manning, G. S., PO Box 80-146, Green Bay, Auckland 1230.
ZL1GSN Nisbet, G. S., Address unknown.
ZL1GSP Purvis, G.S., 2 Nelson Street, Papakura 1703.
ZL1GT Hooker, B. N. N., 9 Amorino Drive, Hibiscus Coast, Orewa 1461.
ZL1GTB Beagley, G. T., 24 Blomfield Street, Rotorua 3201.
ZL1GU Rolfe, E. M., 9 Tait Street, Kamo, Whangarei 0101.
ZL1GVP Details unknown.
ZL1GYM Muzyka, G. Y., 33 Vermont Street, Ponsonby, Auckland 1001.
ZL1GZ Graham, E. W., 18 Seaway Terrace, Tauranga 3001.
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ZL1HAH Details unknown.
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ZL1HAU Hau, A. T., 10 Robin Hood Place, Onerahi, Whangarei 0101.
ZL1HB Details unknown.
ZL1HC Schoeman, S. J. O. (Dr), 438 Devon Street West, New Plymouth 4601.
ZL1HDT Details unknown.
ZL1HE Lord, I. K., 41a Peninsula Club, 441 Whangaparaoa Road, Whangaparaoa 1463.
ZL1HF Harrison, N. D., 42b Taikata Road, Te Atatu North, Auckland 1008.
ZL1HG Grewal, H. (Mrs), 4/263a Titirangi Road, Titirangi, Auckland 1007.
ZL1HH Cottle, D. J., Rainbow Falls Road, RD 2, Kerikeri 0470.
ZL1HI Willis, M. W., Harpoon Hill, RD 1, Claris, Great Barrier Island 1236.
ZL1HIT Rentoul, B. J., RD 1, Church Road, Kamo, Whangarei 0121.
ZL1HJ Gannon, M., 9 Liverpool Street, Te Kuiti 2500.
ZL1HK South Auckland Repeater Group (Branch 86), see Branch Directory.
ZL1HL Carrel, J. L., 167 St Andrews Road, Epsom, Auckland 1003.
ZL1HMS Freely, W B, C/- B Rowlings, 22 Tainui Street, Onerahi, Whangarei 0101.
ZL1HMT Tollenaar, H., 1/33 Argo Drive, Half Moon Bay, Auckland 1706.
ZL1HO Sando, B. C., 1 Rahopara Street, Castor Bay, Auckland 1309.
ZL1HP Cambridge Radio Club, see Branch Directory.
ZL1HR Coles, J. P., 42 Hartford Avenue, Papamoa 3003.
ZL1HS Carter, Carol, 4 Roach Street, Oamaru 8901.
ZL1HT Hardie, B. G. S., C/- Mrs C Paton, 1K RD, Oamaru 8921.
ZL1HU Garton, W G, 48 Kingsford Drive, Stoke, Nelson 7001.
ZL1HV Godfrey, A. G., 882 East Coast Road, Browns Bay, Auckland 1311.
ZL1HW Dickinson, R., 135 Greenhithe Road, Greenhithe, Auckland 1311.
ZL1HY Edwards, Mike, 285 Main Road, Walton 2273.
ZL1HZ Curtis, C. E., 5 Argyle Road, Browns Bay, Auckland 1311.
ZL1IA Pivac, I. G., 4271 Great North Road, Henderson, Auckland 1008.
ZL1IAG Details unknown.
ZL1IB Te Puke Amateur Radio Club, see Branch Directory.
ZL1IC Holdsworth, R., Sexton Road, RD 1, Hamilton 2021.
ZL1ID Graham, N. L., 75 Campbell Road, Mount Maunganui 3002.
ZL1IE Heywood, B., PO Box 3120, Greerton, Tauranga 3030.
ZL1IF Norling, L. E., PO Box 1266, Whangarei 0115.
ZL1IG Monks, J., 2/9 Abelia Place, Papatoetoe, Auckland 1701.
ZL1IH Intemann, R. H. D., 22 Hikutaia Road, Opotiki 3092.
ZL1II Green, G. P. C., 248a Otipua Road, Timaru 8601.
ZL1IJ Details unknown.
ZL1IK Kelly, Iain, 2/25 Charlotte Street, Whangaparaoa 1463.
ZL1IM Carter, E. W. A., 3 Haines Terrace, Te Kuiti 2500.
ZL1IMP Pratt, I. M., 25 Smith Street, Raglan 2051.
ZL1IO McNamara, T. A., 32 Galileo Street, PO Box 8, Ngaruawahia 2171.
ZL1IR Douglas, L. M., 29 Charles Crescent, Hamilton 2001.
ZL1IS Waikato VHF Group, see Branch Directory.
ZL1IT Hayman, G. L., 2/53 Hattaway Avenue, Bucklands Beach, Auckland 1704.
ZL1IU Wallace, N. L., Signals Road, RD 1, Okaihau 0455.
ZL1IV Irving, G. W., 50 Glass Road, Mt Roskill, Auckland 1004.
ZL1IVO Pabbruwe, H. I., 99 Bradbury Road, Howick, Auckland 1705.
ZL1IW Watson, I. B., Kohinui Road, RD 1, Parua Bay 0121.
ZL1IX Taylor, W. R., 65a Butterworth Drive, Glendene, Auckland 1008.
ZL1IY Cleland, D. E., 52 Alfred Street, Fairfield, Hamilton 2001.
ZL1IZ Waitomo Radio Club, see Branch Directory.
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ZL1JAD Daley, J. A., 3 Yacht Place, Bucklands Beach, Auckland 1704.
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ZL1JBM Mulholland, James, Aid for the Bilnd, 10 Cameron Street, Fairfeld, Brisbane, Queensland 4101, Australia.
ZL1JC Granger, P. L., 4 Trent Street, Avondale, Auckland 1007.
ZL1JCB Slagter, J., PO Box 357, Whangarei 0115.
ZL1JD Dunn, J R, 264 Glenvar Road, Torbay, Auckland 1311.
ZL1JDL Hildreth, J. D. (Mrs), PO Box 292, Kumeu, Auckland 1250.
ZL1JDW Henderson, R. R., PO Box 40 606, Glenfield, Auckland 1330 zl1jdw@dxworldvoices.net.
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ZL1JF Finlay, P. T., 62 Woodside Road, Henderson, Auckland 1008.
ZL1JFJ Johnson, J. F., 20 Golf View Road, Kerikeri 0470.
ZL1JG Dent, R. E., C/- 3 Bush Road, Oratia, Auckland 1007.
ZL1JH Details unknown.
ZL1JJ Jackson, D., 67 Awaroa Road, Sunnyvale, Auckland 1008.
ZL1JK Freeman, J. C., 6 Amante Crescent, Mairangi Bay, Auckland 1311.
ZL1JKB Bell, J. K., 28 Seymour Avenue, Papatoetoe 1701.
ZL1JKO Smith, J. W., F1/16a Whiteley Street, New Plymouth 4601.
ZL1JKY Gould, A J, See overseas members G3JKY.
ZL1JL Llewellyn, J. A., RD 2, Matakohe, S H 12, Northland 0584.
ZL1JLB Details unknown.
ZL1JM McIntyre, J., 10 Banksia Dell, Mount Maunganui 3002.
ZL1JN Turner, A., 140 Union Street, Howick 1703.
ZL1JO Walker, N. A., 14 Mawney Road, Henderson, Auckland 1008.
ZL1JOE Tilley, K. J., RD 2, Opotiki 3092.
ZL1JON Bare, J. B., 6 Rose Place, Kamo, Whangarei 0101.
ZL1JP Buckton, J. V., 14 Cockle Bay Road, Howick, Auckland 1704.
ZL1JR Jones, J. W. W., 2/18 Meadowland Drive, Howick 1705.
ZL1JRJ Jones, J. R., 12 Buchanan Street, PO Box 181, Opotiki 3092.
ZL1JRL Details unknown.
ZL1JS Moynihan, E. N., 24 Taikata Road, Te Atatu North, Auckland 1008.
ZL1JSS Smyth, J., Rotongaro Road, RD 2, Huntly 2191.
ZL1JT Turnwald, J. B., 29 Cliff View Drive, Green Bay, Auckland 1007.
ZL1JU Teviotdale, B. M., PO Box 7051, Te Ngae, Rotorua 3230.
ZL1JW Paltridge, J. S., 3 Tutere Road, Papatoetoe 1701.
ZL1JWF Details unknown.
ZL1JZ Davison, P. W., PO Box 16, Waikino 2980.
ZL1KA Addis, B. G., Clark Road, Karaka, RD 1, Papakura 1750.
ZL1KAC McMurray-Cathcart, Kimberly, 38 Shelly Beach Road, Waiheke Island 1240.
ZL1KAG Gould, T M, 79 Gordon Street, Dargaville 0300.
ZL1KAN Lees, M J, 30a Foundry Road, Silverdale, Auckland 1462.
ZL1KB Neill, P. S., 10 Peter Buck Road, Avondale, Auckland 1007.
ZL1KBY Details unknown.
ZL1KD Fairweather, A. W., 69 Burwood Road, Matamata 2271.
ZL1KE Details unknown.
ZL1KF Cole, L. J., 22 Newcastle Road, Hamilton 2001.
ZL1KG Ramsay, R. J., 2a King Street, Whangarei 0101.
ZL1KI Horwood, E. W., 233 King Street, Whakatane 3080.
ZL1KIV Kivell, G. J. (Dr), PO Box 145, Keri Keri, Bay of Islands 0470.
ZL1KJ Cole, Gary J., 25 Matangi Terrace, Snells Beach, Warkworth 1241.
ZL1KK Harrison, I A, C/- 8c Breckons Avenue, Hamilton 2001.
ZL1KL Cooper, H. G. T., 5 Graham Place, Tauranga 3001.
ZL1KLB Details unknown.
ZL1KN Harrison, N M, C/- 8c Breckons Avenue, Hamilton 2001.
ZL1KOB Rasmussen, E. C., C/- Whakatane Motor Camp, McGarvey Road, Whakatane 3080.
ZL1KP Burgess, A. Bruce, 4 Killarney Street, Te Puke 3071.
ZL1KQ Small, J., 32 Paddington Street, Glen Innes, Auckland 1006.
ZL1KR Kleyburg, A., 12 Cherrywood Street, Hamilton 2001.
ZL1KRH Hampshire, K. R., 5 Sapphire Drive, Springfield, Tauranga 3001.
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ZL1KSB Bennett, S. J., 39 Addington Avenue, Manurewa, Auckland 1702.
ZL1KSS Spence, K. S., 1 Kaharoa Avenue, Omokoroa, Tauranga 3021.
ZL1KT Teviotdale, D. A., PO Box 7051, Te Ngae, Rotorua 3230.
ZL1KV Pooley, E. A., 2 Ayr Street, Waihi Beach 2980.
ZL1KW Kawerau Amateur Radio and Hobbies Club, see Branch Directory.

ZL1KX Walford, K. W., 354 Somme Parade, Aramoho, Wanganui 5001.
ZL1KZ Ellery, H. F., 26 Catalina Crescent, Takapuna, Auckland 1309.
ZL1LA Anderson, L. J., 19a Tui Glen Road, Birkenhead, Auckland 1310.
ZL1LAT Sylvester, R. L., 19 Ringwood Street, Torbay, Auckland 1311.
ZL1LB Details unknown.
ZL1LE Egan, B., 12 Island View Terrace, Howick, Auckland 1704.
ZL1LEF Leef, R., 69 Park Avenue, Whangarei 0101.
ZL1LES Savage, L. W., 99 Taupo View Road, Taupo 2730.
ZL1LF Elder, J. W., PO Box 75, Temuka 8752.
ZL1LFA Atkinson, L. F., Kaimaumau Road, 1 RD, Awanui 0552.
ZL1LG Woodfield, Laurice (Mrs), 72 Salamanca Road, Sunnynook, Auckland 1309.
ZL1LH Cowie, D. J., 124 Albany Heights Road, Albany, Auckland 1311.
ZL1LI Hughes, P. D. P., 17 Oscar Road, Greenhithe, Auckland 1311.
ZL1LIN Marr, L. J. (Mrs), C/- NZMCA Mail Drop Service, PO Box 72-147, Papakura 1730.
ZL1LJ Scutts, L. J., C/- 509 Brown Street, Thames 2801.
ZL1LK Sargon, R. P., 2a Enderby Drive, Te Atatu North, Auckland 1008.
ZL1LL McDonald, L., 25 John Street, Pukekohe 1800.
ZL1LM Marsden, A. N., 9 Wanaka Place, Pakuranga, Auckland 1706.
ZL1LN Simmons, A. L., 69 Roberts Avenue, Bayswater, Auckland 1309.
ZL1LON Broadbent, N., 29 Short Street, Otumoetai, Tauranga 3001.
ZL1LP Parsons, E. R., 509/1 Mutu Street, Te Awamutu 2400.
ZL1LR Anderson, P. C., 32 Gilmour Street, Waihi 2981.
ZL1LS McTurk, Andrew, 40 Silverton Road, Waihi 2981.
ZL1LSQ Details unknown.
ZL1LT Malcomson, Merv, 413 Fraser Street, Tauranga 3001.
ZL1LU Heslop, W. T., 19 Corinna Street, Welcome Bay, Tauranga 3001.
ZL1LVJ Details unknown.
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ZL1LWR Rowe, Syd, 223 State Highway 33, Paengaroa, Postal: C/- NZ Post Agency, Paengaroa 3070.
ZL1LY Brown, K. L., 38 Thompson Street, Tokoroa 2392.
ZL1LZ Dunwoody, M. L., 126 Bridgeman Road, Te Awamutu 2400.
ZL1MA Gibbons, A., 27 Lisa Rise, Bucklands Beach, Auckland 1706.
ZL1MAC McPike, B. G., 1/3 Bardia Street, Belmont, Auckland 1309.
ZL1MAD Miller, W N, 26 Catherine Crescent, Whitianga 2856.
ZL1MAX Clear, M. R., Limmer Road, RD 8, Te Kowhai, Frankton 2030.
ZL1MBB Mercury Bay Branch 85, see Branch Directory.
ZL1MC Hume, S. T., 61 Egmont Street, Ohauiti, Tauranga 3001.
ZL1MCC Manukau Civil Defence HQ, C/- Manukau City Council, Attn M. Lowry, Private Bag, Manukau City 1730.
ZL1MCK McKechenie, W. E., 77 Taikata Road, Te Atatu North, Auckland 1008.
ZL1MD McLellan, A. D., 26 Robertson Street, Rotorua 3201.
ZL1MDS Digby-Smith, M. P., 6 Baird Avenue, Te Kauwhata 2152.
ZL1ME Details unknown.
ZL1MEJ Details unknown.
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ZL1MFW Details unknown.
ZL1MG Bretherton, Ted, 24 Iles Road, Rotorua 3201.
ZL1MGB Kenworthy, T. C., 15 Commissariat Road, Mt Wellington, Auckland 1006.
ZL1MH Hutchins, M. G. D., PO Box 581, Kaikohe 0400.
ZL1MI Warriner, A. D., 184 Kauri Road, Whenuapai, Auckland 1008.
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ZL1MJH Details unknown.
ZL1MK Spackman, D. G., 27 Dekker Road, Pyes Pa, RD 3, Tauranga 3021.
ZL1ML Details unknown.
ZL1MLO Details unknown.
ZL1MM Garde-Browne, M., Bowemtown Road, Athenvee, RD 2, Katikati 3063.
ZL1MN Nisbet, D. I., 4 Williams Avenue, Kaikohe 0400.
ZL1MO Spackman, I. H., 124c Taylor Street, Blockhouse Bay, Auckland 1007.
ZL1MOF Moffatt, A., C/- Mobil Oil, PO Box 5008, Mount Maunganui 3030.
ZL1MP Poulton, G. G., 7 Rickards Place, New Lynn, Auckland 1007.
ZL1MQ Davidson, Bruce, 70 Onerahi Road, Onerahi, Whangarei 0101.
ZL1MR Wilkins, D. F., PO Box 117, Papakura, Auckland 1730.
ZL1MRG Details unknown.
ZL1MRX Fuller, J., 26 Sunshine Road, Taumarunui 2600.
ZL1MS Inder, J. H., 19 Rushton Avenue, Otumoetai, Tauranga 3001.
ZL1MST Paton, J. S., 1 Tamariki Avenue, Kelston, Auckland 1007.
ZL1MT Minchin, H. E., Main Road, RD 1, Arapuni, Via Putaruru 2370.
ZL1MU Crooks, D. M., 13 Burrows Avenue, Karori, Wellington 6005.
ZL1MUA Details unknown.
ZL1MV Garrard, R. C., Address unknown.
ZL1MW Huggard, B. F., 12 McClintock Road, Massey, Auckland 1008.
ZL1MX Currie, D. J., 127 Ridge Road, Howick 1705.
ZL1NAS Details unknown.
ZL1NB Hitch, G. W., Rawhiti Road, RD 4, Hikurangi 0251.
ZL1NDM McLuggage, D H, PO Box 615, Whangarei 0115.
ZL1NE Neill, T. J., 10 Peter Buck Road, Avondale, Auckland 1007.
ZL1NF Garrett, R., 13 Rock Isle Road, Torbay, Auckland 1311.
ZL1NG Muller, J., 1/7 Newhaven Terrace, Mairangi Bay, Auckland 1311.
ZL1NH White, N. R., 33 Norton Road, Otumoetai, Tauranga 3001.
ZL1NJ Ecclesfield, B. D., 43 Maihi Crescent, Tauranga 3001.
ZL1NJZ Davison, P. J., PO Box 16, Waikino 2980.
ZL1NK Mander, N. K., 38 Arundel Street, Mt Roskill, Auckland 1004.
ZL1NKM Kane, M. (Mrs), 8 Lancelot Road, Orewa 1461.
ZL1NM Mee, Nigel, Private Bag, Orere Point, Papakura 1730.
ZL1NP Peart, L. C., 15 Tole Street, Ponsonby, Auckland 1001.
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ZL1NS Hickey, John, PO Box 135, Neiafu, Kingdom of Tonga.
ZL1NT Hill, B. J., PO Box 804, Hamilton 2015.
ZL1NTF Hall, T. F., Happy Valley Road, RD 3, Te Awamutu 2400.
ZL1NUB Bullen, V. W. (Mrs), 32 Otumoetai Road, Tauranga 3001.
ZL1NV Jackson, B. T., Albany Heights Road, RD 2, Albany 1311.
ZL1NW Goldfinch, R. Q., 4 Tukes Place, Greenmeadows, Napier 4001.
ZL1NX Baveystock, S. C., 2 Fraser Street, Tauranga 3001.
ZL1NY Orr, N. A., 2/34 Prospect Terrace, Milford, Auckland 1309.
ZL1NZ Blyde, J. V., 43 Wolsbley Road, RD 1, Katikati 3063.
ZL1OA Steegstra, R., PO Box 10-185, Te Mai, Whangarei 0130.
ZL1OB Booth, O. R., 40a Esk Street, Tauranga 3001.
ZL1OC Shaw, Vicki, PO Box 2088, Whakatane 3080.
ZL1OD Wallace, J. A. L., PO Box 1226, Gisborne 3815.
ZL1OF Wapp, A., 14 Country Club Lane, Waiuku 1852.
ZL1OG Gabbie, O. J., PO Box 500 209, Saipan MP-96950, USA.
ZL1OH Fairhead, A. D., The Eyrie, RD 4, Papakura 1730.
ZL1OI Bourne, H. K., Unit 85 Metlifecare Pakuranga Ltd, EdgewateRDrive, Pakuranga 1706.
ZL1OK Fuller, Anna (Mrs), 26 Sunshine Road, Taumarunui 2600.
ZL1OM Windsor, K. W., 36 Chatswood Grove, Birkenhead, Auckland 1310.
ZL1OO Dreaver, B. G. W., 5 Essex Street, Te Atatu South, Auckland 1008.
ZL1OP Details unknown.
ZL1OPA Verhoef, W. C. M., 22b Santa Monica Place, Manukau City, Auckland 1702.
ZL1OR Mullions, R. E., 35 Riverview Road, Morrinsville 2251.
ZL1OS Osborne, B. A. (Mrs), 34 Cobham Drive, Kawerau 3075.
ZL1OT Evans, R. J., PO Box 175, Kaeo 0471.
ZL1OV Kirton, F. N., 1/12 Stewart Gibson Place, Manurewa 1702.
ZL1OVY Hartley, K. D., 29 Cliff Road, Torbay, North Shore City 1311.
ZL1OW Burrows, J. W. L., C/- Post Office, Greerton, Tauranga 3030.
ZL1OX Crawley, H. V., 5/238 Onewa Road, Birkenhead, Auckland, PO Box 34-075, Birkenhead 1330.
ZL1OY Mudford, K. H., 94 Burwood Road, Matamata 2271.
ZL1OZ Skinner, B. J., 12a Anna Place, Taupo 2730.
ZL1PA Manning, Brian, 6 Tupare Heights, Tauranga 3001.
ZL1PAL Details unknown.
ZL1PAM Blackett, P. H., 56 Church Street, Northcote, Auckland 1310.
ZL1PB Brown, P., 5-9 Duke Street, Putaruru 2371.
ZL1PC Slako, P. W., Oakleigh, RD 1, Whangarei 0121.
ZL1PD Ede, A. F., 136 Colville Road, Dargaville 0300.
ZL1PDR Details unknown.
ZL1PE Erceg, P. J., 8 Lake Ora Road, Three Mile Bush Road, Kamo, Whangarei 0121.
ZL1PEN Details unknown.
ZL1PG Morgan, J. A., 38 Dreadon Road, Manurewa 1702.
ZL1PH Yates, Cathy, Linwood Road, Karaka, RD 1, Papakura 1730.
ZL1PI McDonald, A. K., 17 The Glebe, Coastlands, Whakatane 3080.
ZL1PJ Dare, P. H., 28a Wharenui Road, Rotorua 3201.
ZL1PJB Buckingham, P J, 94 Western Road, Ngongotaha, Rotorua 3202.
ZL1PJC Details unknown.
ZL1PK King, P. D., 11 Salmond Place, Hamilton, PO Box 126, Waikato Mail Centre 2015.
ZL1PKT Details unknown.
ZL1PL Grise, M. J., 121 James Street, Postal: PO Box 73, Coromandel 2851.

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ZL1PNH Details unknown.
ZL1PP Dekker, P., 118 Albany Heights Road, RD 2, Albany 1311.
ZL1PR Details unknown.
ZL1PS Brown, T. G., 2 Hilstan Place, Onehunga, Auckland 1006.
ZL1PT Twiss, D. P. L., 35 Rimu Street, Tauranga 3001.
ZL1PTY Details unknown.
ZL1PWD Dent, P W, PO Box 7033, Tikipunga, Whangarei 0133.
ZL1PWS Savage, P. W., 99 Taupo View Road, Taupo 2730.
ZL1PX Martin, H. L., 25 Cockayne Crescent, Sunnynook, Auckland 1309.
ZL1PY Ede, R. P. A., 136 Colville Road, Dargaville 0300.
ZL1PZ Sexton, I. M., 10 Fair Oaks, Pukekohe 1800.
ZL1QB Manukau Radio Club (Inc), see Branch Directory.
ZL1QF Foreman, Q. S., PO Box 7400, Wellesley Street, Auckland 1036.
ZL1QG Morris, D. C., 5 Woodside Road, Henderson, Auckland 1008.
ZL1QH Cooke, S. R., 11 Ashlynne Avenue, Papatoetoe, Auckland 1701.
ZL1QI Gillett, P. A., PO Box 3074, Greerton, Tauranga 3030.
ZL1QK Stone, Bill, 5 Winslowe Place, Papakura 1703.
ZL1QL Borck, Laurie, 28 Denby Crescent, Tikipunga, Whangarei 0101.
ZL1QM Ockleston, G. W., 17 Bracken Avenue, Epsom, Auckland 1003.
ZL1QO Elowsson, B. W., 9 Sanctuary Point, Pakuranga 1706.
ZL1QP Bredan, J. E., 27 Moehau Street, Te Puke 3071.
ZL1QQ Shaw, A. A., PO Box 5461, Lambton Quay, Wellington 6040.
ZL1QT Morris, P. S., 13 Ransom Smyth Drive, Manukau City, Auckland 1702.
ZL1QW Waihi Branch NZART (Inc), see Branch Directory.
ZL1RA Swain, R. A., 314 Ongare Point Road, Ongare Point, RD 1, Katikati 3063.
ZL1RAB Brown, R, 23 Valley Road, Te Puke 3071.
ZL1RAD Details unknown.
ZL1RAE Details unknown.
ZL1RAF Farrant, R. A., 1/27 Holland Road, Glenfield, Auckland 1310.
ZL1RAH Hansen, R. A., 210 Shirley Road, Papatoetoe, Auckland 1701.
ZL1RAL Details unknown.
ZL1RAW Williams, R. A., 47 Arthur Street, Ellerslie, Auckland 1005.
ZL1RAY Kendall, R. D., 86 Haukore Street, Tauranga 3001.
ZL1RB Boggiss, R. J., PO Box 152, Waihi 2981.
ZL1RBH Houghton, Rhondalin B, 44b Mount View Drive, Rotorua 3201.
ZL1RCA Sangster, I. W., 75 Anawhata Road, Piha, RD, Auckland 1250.
ZL1RD Leinwand, Rob, 73 Tender Road, Dairy Flat, RD 4, Albany, Auckland 1311.
ZL1RDK de Koning, R, 247 Upper HarbouRDrive, Greenhithe, Auckland 1311.
ZL1RE Details unknown.
ZL1RF Matamata Amateur Radio Club, see Branch Directory.
ZL1RG Jones, M. N., 96 Russell Road, Huntly 2191.
ZL1RGR Rowe, R. G., 32 Manawa Road, Remuera, Auckland 1005.
ZL1RI Details unknown.
ZL1RJ Jarlov, R. W. E., 85 Mallard Drive, Rotorua 3201.
ZL1RK King, Ralph, 2 Ellesmere Crescent, Pakuranga, Auckland 1706.
ZL1RL Langridge, R. A., 16 Jellicoe Street, Whangarei 0101.
ZL1RM Jeffs, J. F. C., 7 Cashmere Place, Flagstaff, Hamilton 2001.
ZL1RN Lewis, K. J., 168 Ellis Street, Frankton, Hamilton 2001.
ZL1RNF Francis, R. N., 4 Essex Street, Henderson, Auckland 1008.
ZL1ROD Rodney Amateur Radio Club, see Branch Directory.
ZL1ROK Vincent, M P, 248 Blackbridge Road, Dairy Flat, RD 4, Albany, Auckland 1311.
ZL1RON Miller, R. P., 49 Beach Road, Parua Bay, RD 4, Whangarei 0121.
ZL1ROT Rotorua Amateur Radio Club, see Branch Directory.
ZL1RP Details unknown.
ZL1RR Ryan, D. F., 129 Cook Street, Howick 1705.
ZL1RRV Harvey, R. F., 33 Birdwood Avenue, Papatoetoe 1701.
ZL1RS Sutton, R. J., 109 Wright Road, RD 2, Katikati 3063.
ZL1RSC Details unknown.
ZL1RT Maginnity, D., 7 Kentucky Crescent, Nawton, Hamilton 2001.
ZL1RU Gooch, G. M., 21 Jeffreys Road, Fendalton, Christchurch 8005.
ZL1RVR Voorburgh, R., PO Box 36, Mangawhai 0583.
ZL1RW Wilson, R. M., "Longwood" Anderson Road, RD 5, Warkworth 1241.
ZL1RWB Barraud, R. W., 85 Target Road, Glenfield, Auckland 1309.
ZL1RWJ Johnson, R. W., 8 Graham Street, PO Box 33, Te Kopuru 0356.
ZL1RWM McNamara, R. W., PO Box 429, Opotiki 3092.
ZL1RX Wighton, G. M., 52 Ainsworth Road, C/- Post Office, Bethlehem 3001.
ZL1RY Shimmin, R. L., 130 Union Road, Howick, Auckland 1705.
ZL1RZ Johnstone, A. R., 74 Waimumu Road, Massey, Auckland 1008.
ZL1SA Franklin Branch Radio Club (Inc), see Branch Directory.
ZL1SB Sapich, S., 148 Forest Hill Road, Henderson, Auckland 1008.
ZL1SC Corrigan, M. L., PO Box 40-135, Glenfield, Auckland 1330.
ZL1SCD Details unknown.
ZL1SD Colquhoun, R. D., 32 Valley Road, Mt Eden, Auckland 1003.
ZL1SDD Details unknown.
ZL1SEA Details unknown.
ZL1SH Adair, M. W., 41 Seavista Avenue, Birkdale, Auckland 1310.
ZL1SHF MED Listed Beacon.
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ZL1SJW Details unknown.
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ZL1SKC Saint Kentigern College, PO Box 51-060, Pakuranga 1730.
ZL1SKF Faupel, Stephen, 32 Howe Street, Howick, Auckland 1705.
ZL1SLO Dunatov, F., 80 Shaw Road, Oratia, Auckland 1007.
ZL1SM Details unknown.
ZL1SMG Details unknown.
ZL1SN Details unknown.
ZL1SNA Details unknown.
ZL1SO Miller, R. L., 52 Hinekura Avenue, Taupo 2730.
ZL1SP Bain, Fred, 58 George Crescent, Buckland, RD 2, Pukekohe 1800.
ZL1SQ Van Den Heuvel, T., 9 Laing Place, Otumoetai, Tauranga 3001.
ZL1SS Skellon, D. B., 36 Mountbatten Avenue, Glenfield, Auckland 1310.
ZL1SV Perkins, J. A., 2 Ponui Place, Mairangi Bay, Auckland 1311.
ZL1SVD Duoba, S. V., 17 Kowhai Street, Inglewood 4651.
ZL1SW Wright, A. T., Toka Toka Road, RD 2, Toka Toka, Ruawai 0586.
ZL1SWW Watt-Wyness, S. C., 5 Abingdon Place, Glendowie, Auckland 1005.
ZL1SX Kirkham, A. L., 38 Waller Avenue, Bucklands Beach 1704.
ZL1SY Thompson, Murray G., 13 McDowell Street, Rotorua 3201.
ZL1SZ Evans, M. J., 14 Henderson Street, Whakatane 3080.
ZL1TA Mortensen, N. R., 16 Melrose Road, Hillsborough, Auckland 1004.
ZL1TAD Doar, T. A., 49b Peach Road, Glenfield, Auckland 1310.
ZL1TAE Ristic, A. T., Buckland Road, RD 4, Tuakau 1892.
ZL1TAF Anderson, Anne, 32 Gilmour Street, Waihi 2981.
ZL1TAG Plimley, A. E., 104 Porawai Road, Thames 2801.
ZL1TAI McBurney, R. T., 25 Hamilton Road, Papatoetoe 1701.
ZL1TAJ Ellis, N. M., PO Box 1020, Tauranga 3015.
ZL1TAK Sergent, P. A., 20 Marie Avenue, Te Atatu South, Auckland 1004.
ZL1TAL Burrage, D. A., 87 Kauri Point Road, Laingholm, Auckland 1007.
ZL1TAN O'Callaghan, D. R., Private Bag 93-211, Parnell, Auckland 1033.
ZL1TAO Kimber, W. C., 50 Main Road, Titahi Bay, Wellington 6006.
ZL1TAP Race, A P, 8c Novelle Grove, Papamoa, Tauranga 3003.
ZL1TAR Wilkinson, R. N., 19 Island Bay Road, Beachhaven, Auckland 1310.
ZL1TAT Brown, I. W., 35 Lancaster Street, Hamilton 2001.
ZL1TAU Coghlan, P. R., 18 Essex Street, Te Atatu South, Auckland 1008.
ZL1TAX Details unknown.
ZL1TAY Thornton, D., 12 Rahui Road, Greenhithe, Auckland 1311.
ZL1TAZ Purdy, G. N., 36a Pleasant Road, Glen Eden, Auckland 1007.
ZL1TB Howick and District Branch NZART (Inc), see Branch Directory.
ZL1TBB Carter, R., 1218 Huia Road, Huia, Auckland 1007.
ZL1TBE Essipov, B., Meadow Court Motel, Papatoetoe, Postal: PO Box 23-001,Hunters Corner, Auckland 1730.
ZL1TBG Sanson, R. G., 55 Bertram Street, Warkworth 1241.
ZL1TBK Details unknown.
ZL1TBL Details unknown.
ZL1TBM Details unknown.
ZL1TBN Sanders, P., Newells Road, RD 3, Hamilton 2021.
ZL1TBO Details unknown.
ZL1TBP Croll, D., 25 Pouwhare Street, Whakatane 3080.
ZL1TBQ Angell, A. R., 49b Crane Street, Mount Maunganui 3002.
ZL1TBX Bott, A. D., PO Box 11-056, Ellerslie, Auckland 1131.
ZL1TBY Seccombe, J. G., Oaklands Road, RD 1, Papakura 1730.
ZL1TBZ Tatton, W. C., 7 Realm Place, Massey, Auckland 1008.
ZL1TC Metcalfe, A. D., Address unknown.
ZL1TCC Topper, K. K., 11 Edith Place, Hamilton 2001.
ZL1TCD Details unknown.
ZL1TCE Nation, D. L., 54 Prisk Street, Hamilton 2001.
ZL1TCF Fortune, T. La T., 129a Bleakhouse Road, Howick 1704.
ZL1TCI Grange, D. L., PO Box 80-026, Green Bay, Auckland 1230.
ZL1TCJ Jackson, L. H., 5 Ripon Crescent, Meadowbank, Auckland 1005.
ZL1TCK Woolley, M. G., 5a Springbank Lane, Te Atatu North, Auckland 1008.

ZL1TCN Herbert, E. R., 13a Didsbury Drive, Waihi Beach 2980.
ZL1TCO Tapp, A. J., PO Box 1669, Whangarei 0115.
ZL1TCP Mattler, J. L., 25 Seddon Street, Te Kuiti 2500.
ZL1TCQ Details unknown.
ZL1TCR Bell, K. G., 174 Carnoustie Drive, Wattle Downs, Manurewa, Auckland 1702.
ZL1TCS Billing, C. I. (Mrs), 2 Norfolk Terrace, Whangaparaoa, Auckland 1463.
ZL1TCU Legg, M. E., 3/18 Rangitoto Terrace, Milford, Auckland 1309.
ZL1TCX Taylor, A. J., 56 Mayfair Crecsent, Mairangi Bay, Auckland 1311.
ZL1TCZ Turnwald, F. L. (Mrs), 29 Cliff View Drive, Green Bay, Auckland 1007.
ZL1TDA Shackleton, R. D., 17 George Street, Kingsland, Auckland 1003.
ZL1TDB Raffles, Margaret, 54 Rockfield Road, Ellerslie, Auckland 1006.
ZL1TDE Davis, W. L., 48 Chatsworth Crescent, Pakuranga, Auckland 1706.
ZL1TDF Details unknown.
ZL1TDG Morris, V., 1/1 Castlemaine Close, Howick, Auckland 1705.
ZL1TDH Dunsbee, B. L., Gun Club Road, RD 1, Pukekohe 1800.
ZL1TDI Lee, C. P., Parkwood Rest Home, 62-72 Aldwins Road, Linwood, Christchurch 8006.
ZL1TDJ Burton, R. D., 11 Henderson Valley Road, Henderson, Auckland 1008.
ZL1TDK Fitzpatrick, D. J., 24 Aspiring Crescent, Chartwell, Hamilton 2001.
ZL1TDO Details unknown.
ZL1TDQ Woodfield, Dave, 39 Aliford Avenue, One Tree Hill, Auckland 1006.
ZL1TDR Harding, B. D., 25 Meadowcroft Grove, Johnsonville, Wellington 6004.
ZL1TDS Wright, M. E. (Ms), 130 James Street, Whakatane 3080.
ZL1TDU Allan, P. K., 12 High Street, Whangarei 0101.
ZL1TDV Penwarden, E. C., 13 Kupe Place, Tokoroa 2392.
ZL1TDW Bullough, E. G., 20 Coldham Crescent, Meadowbank, Auckland 1005.
ZL1TDY Details unknown.
ZL1TDZ Miller, C. J., 13a Omahu Road, Remuera, Postal: PO Box 128-152, Remuera, Auckland 1136.
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ZL1TEA Morton, Kevin W, 41 Aroha View Avenue, Te Aroha 2971.
ZL1TEE Details unknown.
ZL1TEM Gulliver, Edith, 43a Te Ahuahu Road, RD 2, Piha, Auckland 1250.
ZL1TEO Grossman, R. W., PO Box 80 080, Green Bay, Auckland 1230.
ZL1TEP Rankin, D. J., PO Box 12-557, Penrose, Auckland 1135.
ZL1TES Bruce, K. W., 37 Japonica Drive, Birkdale, Auckland 1310.
ZL1TEV Barnett, D. S., 16 Pembroke Street, Moerewa 0292.
ZL1TEX Sands, J. E., 86 Oakdale Road, Hillsborough, Auckland 1004.
ZL1TEY McDonald, M. S., 52 Cargill Street, Papakura 1703.
ZL1TF Morrison, I. McG., 183 The Sycamores, Milton, Cambridge, UK CB46ZH.
ZL1TFA Schwarz, B. A., 6 Leeds Street, Hamilton 2001.
ZL1TFB Cooper, S. W., 202 Otau Mountain Road, Clevedon 1750.
ZL1TFC Godfrey, J. P., 15 Crompton Road, Massey, Auckland 1008.
ZL1TFD Iversen, R. J., 1/3 Akehurst Avenue, New Lynn, Auckland 1007.
ZL1TFG Ballantyne, D. L., Bush Road, Albany, PO Box 28, Albany Village 1330.
ZL1TFH Swift, D. M., 42 Sherwood Road, Onerahi, Whangarei 0101.
ZL1TFJ Enersen, F. J. C., 20 Brookfield Terrace, Otumoetai, Tauranga 3001.
ZL1TFL Hawkes, R. G., 26 Penzance Road, Mairangi Bay, Auckland 1311.
ZL1TFO Baine, C. J., Main Road, PO Box 1, Broadwood 0571.
ZL1TFP Purdy, R. G., 41 John Davis Road, Mt Roskill, Auckland 1004.
ZL1TFW Savage, J., 151 Valley Road, Henderson, Auckland 1007.
ZL1TFX Rowe, R. A., 422 Thames Street, Morrinsville 2251.
ZL1TFY Details unknown.
ZL1TG Rumming, E., 50 Corlett Street, Rotorua 3201.
ZL1TGA Haley, A. M. E., 30 Buckingham Crescent, Papatoetoe 1702.
ZL1TGB Details unknown.
ZL1TGC Henderson, V. N., PO Box 34-507, Birkenhead, Auckland 1330.
ZL1TGD Topping, R. M., Airport Road, RD 3, Tamahere, Hamilton 2021.
ZL1TGF Mullions, B. A. (Mrs), 35 Riverview Road, Morrinsville 2251.
ZL1TGG Soppit, T. R., 73 Astley Avenue, New Lynn, Auckland 1007.
ZL1TGN Lindop, P. R., Cullen Road, RD 2, Waipu Cove 0254.
ZL1TGO Details unknown.
ZL1TGP Bielby, R. K., 4 Bennett Road, Pakuranga 1706.
ZL1TGQ Shackleton, E. G., Hillcrest Road, PO Box 22, Kaitaia 0500.
ZL1TGR Hoole, G. L., 111 Buckland Street, Putaruru 2371.
ZL1TGS Smith, J. M., 24 De Quincey Terrace, Howick, Auckland 1706.
ZL1TGV Holmes, B. S., Coast Road, RD 3, Waiuku 1852.
ZL1TGX McNamara, Anne, 32 Galileo Street, PO Box 8, Ngaruawahia 2171.
ZL1TGZ Purvis, A. W., PO Box 142, Waihi 2981.
ZL1THB Phayer, C., 4 Korimako Place, Tokoroa 2392.
ZL1THD Turner, R. W., PO Box 381, Te Kuiti 2500.
ZL1THE Fletcher, D. O., 24 Guy Road, Kaikohe 0400.
ZL1THF Kirkman, B. A., "Cartgate", S H 22, Glen Murray, RD 5, Tuakau 1892.
ZL1THG Bevan, T. M., 3 Glendale Drive, Hamilton 2001.
ZL1THJ Paul, R. E., 8 Quebec Road, Milford, Auckland 1309.
ZL1THK Russell, J. A., 1/29 Clonbern Road, Remuera, Auckland 1005.
ZL1THL Piper, G. L., 16 Samuel Place, Hamilton 2001.
ZL1THN Crozier, D. K., 154 Grey Street, Onehunga, Auckland 1006.
ZL1THO McNeil, D. R., 33 Eivers Road, Whakatane 3080.
ZL1THQ Tunnicliffe, G. O. L. J., 9 School Road, Ngongotaha 3202.
ZL1THU Cooke-Willis, S. O., 15 Madras Street, Khandallah, Wellington 6004.
ZL1THV Crawford, G., 42 Forest Lake Road, Hamilton 2001.
ZL1THW Thwaites, I. G., Address unknown.
ZL1TI Godkin, I. P., 45 Dalwhinnie Parade, Howick, Auckland 1705.
ZL1TIA Dingley, D. G., 2139 Great North Road, Avondale, Auckland 1007.
ZL1TIB Dobbie, C. H., 30 Faulder Avenue, Westmere, Auckland 1002.
ZL1TIC Coles, R. I., RD 2, Putaruru 2371.
ZL1TIF Callaghan, P. J., PO Box 100-735, North Shore Mail Centre, Auckland 1333.
ZL1TIG Palmer, L. H., 10 Puketapu Crescent, Taumarunui 2600.
ZL1TII O'Brien, K. M. J., 10 Murray Place, Lincoln 8152.
ZL1TIK Mowry, L. E., 25 Warwick Place, Brookfield, Tauranga 3001.
ZL1TIL Clarke, W. D., 21 Fruitvale Road, New Lynn, Auckland 1007.
ZL1TIO Bowers, S., 21 Hingaia Street, Turangi 2751.
ZL1TIP Hickson, D. L., C/- King Country EPB, PO Box 363, Taumarunui 2600.
ZL1TIQ Watson, J. R., 19 Tania Place, Blockhouse Bay, Auckland 1007.
ZL1TIR MacLardy, W. J., South Highway, PO Box 87, Whitianga 2856.
ZL1TJ Matthys (Snr), J. K. C., 4/84 Admiral Crescent, Flagstaff, Hamilton 2001.
ZL1TJA Powell, A. T., 17 Murray Street, Maeroa, Hamilton 2001.
ZL1TJD Details unknown.
ZL1TJF Fraknovary, G. A., 10 Canberra Avenue, Lynfield, Auckland 1004.
ZL1TJG French, T. G., 13 Bannerman Road, Western Springs, Auckland 1002.
ZL1TJH Gyde, G. N., 11 McCracken Avenue, Hamilton 2001.
ZL1TJK Munden, A. J., 24 Paraonui Road, Tokoroa 2392.
ZL1TJO Details unknown.
ZL1TJR Trickett, N. D., 42 Riddell Road, Glendowie, Auckland 1005.
ZL1TJS McWilliams, D. J., 6 Kalgan Place, Burswood Estate, Howick, Auckland 1705.
ZL1TJT Manning, A. R. (Mrs), RD 5, Te Mawhai, Te Awamutu 2400.
ZL1TJU Dawson, D. H., 22a Pah Road, Cockle Bay, Auckland 1704.
ZL1TJV Details unknown.
ZL1TK Harrington, R. J., PO Box 105-376, Auckland Central, Auckland 1030.
ZL1TKA Hindmarsh, R. J., 78 Kelvin Road, Papakura 1703.
ZL1TKB Shaw, A. G., 25 Blackburn Street, Hamilton 2001.
ZL1TKD Gill-Fox, D. A. (Mrs), 38 Moore Street, Glenfield, Auckland 1310.
ZL1TKE Clark, D. W., 29 Puriri Road, Whenuapai Village 1008.
ZL1TKG Talbot, V. G., 93a Pembroke Street, Hamilton 2001.
ZL1TKJ Robinson, C. S., PO Box 87-227, Meadowbank, Auckland 1130.
ZL1TKN Baylis, M. R., 1 Munro Street, Onerahi, Whangarei 0101.
ZL1TKQ Duncan, R. G., PO Box 11-040, Ellerslie, Auckland 1131.
ZL1TKR Foster, B. E., 30 Moresby Avenue, Waihi 2981.
ZL1TKS Duncan, A. K., 26 Ngaio Road, Kelburn, Wellington 6005.
ZL1TKU Hilliar, D. J., 13 Chipping Dale, Mangere Bridge, Auckland 1701.
ZL1TKW Bodman, K. I., 21 Bernard Street, Hamilton 2001.
ZL1TKX Weatherley, D. C., 66 George Point Road, Onerahi, Whangarei 0101.
ZL1TL Pickworth, R. A., Redcastle Road, RD 1D, Oamaru 8921.
ZL1TLA Koolen, J. F. L., 32 Kings Road, Panmure, Auckland 1006.
ZL1TLB Manning, J. C., 627 Beach Road, Rothesay Bay, Auckland 1311.
ZL1TLC May, A. P., 18 Longwood Place, Forrest Hill, Auckland 1309.
ZL1TLD Walker, W. D., PO Box 241, Otorohanga 2564.
ZL1TLF Cadness, R. H., 109 Glamorgan Drive, Torbay, Auckland 1311.
ZL1TLH Harris, L. I., 104 Captain Scott Road, Titirangi, Auckland 1007.
ZL1TLI Craig, N. A., 12 Orchard West Road, Ngatea 2852.

ZL1TLM Details unknown.
ZL1TLN Onrust, F., 37a Sylvia Road, St Heliers, Auckland 1005.
ZL1TLP Yerex, B. S., 24 High Street, Rotorua 3201.
ZL1TLQ McMillan, D. J., 4 Inaka Place, Matamata 2271.
ZL1TLR Walton, R. W., PO Box 118, Helensville 1250.
ZL1TLS Details unknown.
ZL1TLU Stevens, David, 53 Marellan Road, Red Beach, Auckland 1461.
ZL1TLV Oxner, E. A., 11 Warrington Street, Matua, Tauranga 3001.
ZL1TM Chatalov, A, 14a Wright Road, Point Chevalier, Auckland 1002.
ZL1TMB McDonald, B. D., 7 Oriana Avenue, Mt Roskill, Auckland 1004.
ZL1TMD Pope, A. J. (Miss), 85 Campbell Road, One Tree Hill, Auckland 1006.
ZL1TMF McFadyen, D. G., 1 Hikurangi Terrace, Taumarunui 2600.
ZL1TMG Greenfield, R. S. T., 33 Tui Crescent, Maunu, Whangarei 0101.
ZL1TMI Moseley, S. F. (Ms), PO Box 296, Waiuku 1730.
ZL1TMJ Details unknown.
ZL1TMK Krause, R. E., 7 Gordon Street, Kawerau 3075.
ZL1TML Details unknown.
ZL1TMM Brooker, A S, 1023 Maungakawa Road, RD 4, Cambridge 2351.
ZL1TMO Lawry, M. G., 22 Claremont Terrace, Otumoetai, Tauranga 3001.
ZL1TMP Pike, T. M., PO Box 299, Papakura, Auckland 1730.
ZL1TMQ McCarthy, J. W., Address unknown.
ZL1TMR Alderson, R. I., 50a Tiverton Road, Avondale, Auckland 1007.
ZL1TMT Details unknown.
ZL1TMV Details unknown.
ZL1TMX Manning, Maxine, 6 Tupare Heights, Tauranga 3001.
ZL1TND Probine, D. C., 6 Moreland Road, Mt Albert, Auckland 1003.
ZL1TNL Rodgers, P. A. (Mrs), 22 Golders Place, Taupo 2730.
ZL1TNO O'Lean, T. J., 38 Kereru Road, RD 2, Ngaruawahia 2171.
ZL1TNQ Talbot, Alison, 64 Woodlands Crescent, Browns Bay, Auckland 1311.
ZL1TNY Quedley, F. J., 16 Woodhall Road, Epsom, Auckland 1003.
ZL1TO McDonald, T. S., 25 John Street, Pukekohe 1800.
ZL1TOB Crawford, J. V., 2/10 Park Avenue, Whangarei 0101.
ZL1TOC Colbert, O. C., 70 David Avenue, Manurewa 1702.
ZL1TOF Baker, G. S., 3/106 Celtic Crescent, Ellerslie, Auckland 1005.
ZL1TOG Taylor, L. R., 805 Riddell Road, St Heliers, Auckland 1005.
ZL1TOH Dale, B. H., Address unknown.
ZL1TON Mellars, L. R., 564 Beach Road, Rothesay Bay, Auckland 1311.
ZL1TOQ Ashton, I. M., 7 Cunliffe Place, Glenfield, Auckland 1310.
ZL1TOR Adams, N. J., 37 Poplar Lane, Matangi Road, RD 4, Hamilton 2021.
ZL1TOU Lowe, J., 51 Epsom Avenue, Epsom, Auckland 1003.
ZL1TOW Orr, W. B., 1c Rostrevor Avenue, Epsom, Auckland 1003.
ZL1TOY McGilp, F. C., 6a Lilian Place, Pakuranga 1706.
ZL1TP Tauranga Amateur Radio Club, see Branch Directory.
ZL1TPB Brooks, R. K., 391 Ellerslie-Panmure Highway, Panmure, Auckland 1006.
ZL1TPE McEwen, D. J., 11 Matipo Road, Te Atatu North, Auckland 1008.
ZL1TPF Humphrey, J. M. (Mrs), C/- 769 Cameron Road, Tauranga 3001.
ZL1TPG van Loon, Q. J. M., 30 Sturges Road, Henderson, Auckland 1008.
ZL1TPH Hayman, S. R., 68 Kath HoppeRDrive, Orewa 1461.
ZL1TPI Smirk, A. T., 10 Masons Avenue, Herne Bay, Auckland 1001.
ZL1TPJ Walker, B. J. (Mrs), Crane Road, RD 1, Kamo 0121.
ZL1TPM Mead, P. G., 199a Don Buck Road, Massey, Auckland 1008.
ZL1TPN Details unknown.
ZL1TPO Vos, P. M., 1 Cashel Place, Torbay, Auckland 1311.
ZL1TPW Wild, P. T., 92 Elizabeth Knox Place, Panmure, Auckland 1006.
ZL1TPY Details unknown.
ZL1TQF Webster, E. T., Lake Road, Okaihau, Whangarei 0455.
ZL1TQM Joseph, D. H., 38 Sunnybrae Road, Glenfield, Auckland 1310.
ZL1TQN Woodward, N. F., Main Highway 33, RD 9, Te Puke 3071.
ZL1TQQ Hobday, D. S., 12 Onedin Place, Titirangi, Auckland 1007.
ZL1TQT Details unknown.
ZL1TQZ Rowe, I. S., 11 Eiger Place, Howick, Auckland 1705.
ZL1TR Rist, T. A., 1/139 Wyllie Road, Papatoetoe, Auckland 1701.
ZL1TRA Cox, R. O., 108b Beach Road, Papakura 1703.
ZL1TRC Hardwick, D. E., 66 Norrie Street, Melville, Hamilton 2001.
ZL1TRE Shepherd, M. B., 70a Long Drive, St Heliers, Auckland 1005.
ZL1TRF De Wit, R., 1 Pegasus Drive, Rotorua 3201.
ZL1TRG Welcome, P., 12 Batkin Road, Avondale, Auckland 1007.
ZL1TRH Walker, Ann, 51 Caronia Crescent, Mt Roskill, Auckland 1004.
ZL1TRJ Welcome, P, 12 Batkin Road, Avondale, Auckland 1007.
ZL1TRL Huljich, A. P., 137 Totara Road, Whenuapai 1008.
ZL1TRM Bulte, L. W. (Mrs), 172 Park Road, RD 3, Waiuku 1852.
ZL1TRV Huljich, P. A., 137 Totara Road, Whenuapai 1008.
ZL1TRW Details unknown.
ZL1TRX Wilson, J. P., 10 Brian Avenue, Milford, Auckland 1309.
ZL1TRY Details unknown.
ZL1TS Prentice, L. G., 5 Mountain View Road, Morningside, Auckland 1002.
ZL1TSA Duffield, Craig, 21 Rangatira Street, Taupo 2730.
ZL1TSB Bishell, S., PO Box 424, Whangarei 0115.
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ZL1TYW Middlemiss, G. D., Eureka Station Road, RD 4, Hamilton 2021.
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ZL1UWH Jackson, C. W., 159 Bridge Street, Opotiki 3092.

ZL1UWZ Read, J. J., 171 Hakanoa Street, Huntly 2191.
ZL1UX Hamilton Amateur Radio Club (Inc.), see Branch Directory.
ZL1UXA Lamberton, J. J., 906a East Coast Road, Browns Bay, Auckland 1311.
ZL1UXB Wilson, B J, PO Box 23-375, St Heliers, Auckland 1130.
ZL1UXD Goldstone, N. P., PO Box 351, Drury, Auckland 1730.
ZL1UXE Kempthorne, R. E., PO Box 133, Featherston 5952.
ZL1UXL Garnett, N. J. G. (Miss), Address unknown.
ZL1UXO Posel, W. W., 28 Matai Street, Hamilton 2001.
ZL1UXR Eltringham, R. J., Address unknown.
ZL1UXV Moebus, Stan, PO Box 14-098, Panmure, Auckland 1134.
ZL1UY Downard, T. V. E., 13 Riverlea Drive, Katikati 3063.
ZL1UYB Andersen, H. L. C., Address unknown.
ZL1UYJ Douglas, G. A. V., 9 Williams Crescent, Port Wells Village, RD 6, Warkworth 1241.
ZL1UYZ Phillips, D. S. M. (Dr), PO Box 36, Waihi Beach 2980.
ZL1UZ Truman, A. R., 1/24 Te Mata Road, Havelock North 4201.
ZL1UZD Woods, W., Address unknown.
ZL1UZF Carroll, D. H., 66a Simpson Road, Swanson, Auckland 1008.
ZL1UZG Smith, L. A., 17 Church Street, Swanson, Auckland 1008.
ZL1UZJ Graham, J. M. (Mrs), 18 Seaway Terrace, Tauranga 3001.
ZL1UZL Taitoko, A. J., PO Box 62-078, Mt Wellington, Auckland 1130.
ZL1UZM Schindler, W. H., Address unknown.
ZL1UZO Details unknown.
ZL1UZU Akroyd, L. T., 70 Daffodil Street, Titirangi, Auckland 1007.
ZL1UZY Hartley, N. A., Taipa, RD 3, Kaitaia 0500.
ZL1VA Sears, V. C. A., 11 Roderick Street, Tauranga 3001.
ZL1VAH Hopkins, A., 41 Glenstane Road, Whangaparaoa, Auckland 1463.
ZL1VAK King, A. B., CSS Mainstore, Supply Sqn, RNZAF Base Auckland, Whenuapai 1008.
ZL1VAN Details unknown.
ZL1VAT Richards, P. E., Address unknown.
ZL1VAW Details unknown.
ZL1VB Jones, R. C., Address unknown.
ZL1VBN Allen, D. G., Address unknown.
ZL1VBR Gates, L. J., 30 Hobson Street, Kawerau 3075.
ZL1VBT Mitchell, J. D., C/- 11 Kingsford Mews, Hamilton 2001.
ZL1VBW Liddle, Y. D. M. (Mrs), 3 Hinemotu Avenue, Kawerau 3075.
ZL1VCB Bale, C. W., 66 Valley Road, Hikurangi, Whangarei 0251.
ZL1VCC Hill, R., 15 Bertram Street, Rotorua 3201.
ZL1VCJ Jaques, C. N., 22 Marne Street, Palmerston North 5301.
ZL1VCR Aspinall, N. B., 3 Long View Crescent, Otorohanga 2564.
ZL1VD Cutler, J. L., 12 The Companionway, Whitby 6006.
ZL1VDB Boyes, D. G., PO Box 48, Mangonui 0557.
ZL1VDF Foster, D. M., 2 Carbery Place, Manurewa, Auckland 1702.
ZL1VEO Details unknown.
ZL1VEY Harvey, N. M., 144 Ostrich Road, RD 4, Pukekohe 1800.
ZL1VF Moller, L. J., 228 Dobson Street, Ashburton 8300.
ZL1VFO Pople, I. O., Hinau Road, RD 1, Waimauku 1250.
ZL1VFW White, F. W., 150 Pahioa Road, C/- Bethlehem PO, Tauranga 3001.
ZL1VG Bicheno, N. C., 100 Wood Bay Road, New Lynn, Auckland 1007.
ZL1VGC Conroy, G. J., Hetherington Road, RD 2, Huntly 2191.
ZL1VGF Details unknown.
ZL1VGL Leong, G., RD 4, Newstead, Hamilton 2001.
ZL1VH Sanne, J. H., 49 Cameron Road, Hamilton 2001.
ZL1VHF MED Listed Beacon.
ZL1VHS Sole, H. A., PO Box 437, Warkworth 1241.
ZL1VHW MED Listed Beacon.
ZL1VIM Martin, D. W., Flat 3b, 163 Tamaki Drive, Kohimarama, Auckland 1005.
ZL1VIP Hildreth, D. N., PO Box 292, Kumeu, Auckland 1250.
ZL1VJ Somerville-Ryan, R, 13 Carr Street, Kamo, Postal: PO Box 939, Whangarei 0115.
ZL1VJB Busch, J. M., PO Box 372, Warkworth 1241.
ZL1VJL Details unknown.
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ZL1VJT Details unknown.
ZL1VK Papakura Amateur Radio Club, see Branch Directory.
ZL1VKG Moates, C R, PO Box 102, Maungatapere 0240.
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ZL1VL Lear, V. C., 33a Clydesdale Avenue, Howick, Auckland 1705.
ZL1VLD Doel, L. D., Headland Farm Park, RD 4, Whangarei 0121.
ZL1VM Arnold, R. R., 21 Seaview Road, Milford, Auckland 1309.
ZL1VMA Armour, M. H., 34 Ennis Avenue, Pakuranga, Auckland 1706.
ZL1VMD Pope, S. F. (Ms), 85 Campbell Road, One Tree Hill, Auckland 1006.
ZL1VMF Foster, M. S., 2 Carbery Place, Manurewa, Auckland 1702.
ZL1VMO Details unknown.
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ZL1VNR Roberts, Nick, 7 Nan Place, Pakuranga, Auckland 1706.
ZL1VOJ Details unknown.
ZL1VOT Hart, Stephen, 1-65 Nelson Street, Pukekohe, Auckland 1800.
ZL1VPB Busch, P. N., PO Box 372, Warkworth 1241.
ZL1VPD Bretherton, P., 52 Stafford Street, Cambridge 2351.
ZL1VPG Garlick, P., 60 Ardmore Road, Herne Bay, Auckland 1001.
ZL1VPJ Jarman, P. J., 17 Corrin Street, Hamilton 2001.
ZL1VPS Sole, P. W., PO Box 437, Warkworth 1241.
ZL1VQ Coppard, E. T., 11 Christensen Street, Waihi 2981.
ZL1VR Gilligan, C. R., 4 Lambert Street, Abbotsford, Dunedin 9006.
ZL1VRD Duxfield, L. R., 157 Ulster Street, Hamilton 2001.
ZL1VRR Reddell, R. W., 394b Mt Albert Road, Mt Roskill, Auckland 1004.
ZL1VS Deverall, W. H., 24 Deuxberry Avenue, Northcote, Auckland 1310.
ZL1VSF Details unknown.
ZL1VSG Gurr, S. R. (Miss), 3 Brightside Road, Stanmore Bay, Whangaparaoa 1463.
ZL1VSJ Scheffer, J. A., 103 Manuka Road, Glenfield, Auckland 1310.
ZL1VST Woodfield, Kelly, 9a Rewi Road, Royal Oak, Auckland 1003.
ZL1VTA Details unknown.
ZL1VTC Cron, Trish, 31 Kakanui Avenue, Hamilton 2001.
ZL1VTF Details unknown.
ZL1VWM Details unknown.
ZL1VX Boyd, R., 14 Dundas Street, Whitianga 2856.
ZL1VXH Hedayati, S., 2/8 Orchard Street, Avondale, Auckland 1007.
ZL1WA Wills, Alma, 14a Graham Street, Pukekohe 1800.
ZL1WAA Details unknown.
ZL1WAG Nixon, L M, 27 Haycock Street, Mt Roskill, Auckland 1004.
ZL1WAJ Details unknown.
ZL1WAR Grey, D. A., 367b Arrowville Road, RD 2, Waiuku 1852.
ZL1WAT Percival, M. D., 32 Tammadge Street, Te Kuiti 2500.
ZL1WB Rowlings, B. H., 22 Tainui Street, Onerahi, Whangarei 0101.
ZL1WBH Herlihy, B., 20 Kea Place, Tokoroa 2392.
ZL1WBJ Details unknown.
ZL1WBP Details unknown.
ZL1WBZ Wilson, N R, 3 Magdalen Place, West Harbour, Auckland 1008.
ZL1WC Cramond, W. E. H., 103 Wharf Road, Te Atatu, Auckland 1008.
ZL1WCJ Johnson, C. A. (Mrs), PO Box 60 202, Titirangi, Auckland 1230.
ZL1WCM Details unknown.
ZL1WCR Details unknown.
ZL1WD Details unknown.
ZL1WDA Dalley, P. R., PO Box 14-195, Panmure, Auckland 1134.
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ZL1WDE Details unknown.
ZL1WDH Details unknown.
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ZL1WE Edlin, Wally, PO Box 495, Papakura 1730.
ZL1WEN Details unknown.
ZL1WER Details unknown.
ZL1WET Jackson, A. D., 4 Woodward Street, Hamilton 2001.
ZL1WFA Details unknown.
ZL1WFD Details unknown.
ZL1WG Boric, H. V., 27 Cleary Road, Panmure, Auckland 1006.
ZL1WGA Addison, G., 99 Richmond Avenue, Tokoroa 2392.
ZL1WGB Bold, G. T., 15 Kauri Road, Birkenhead, Auckland 1310.
ZL1WGL Landon, Garry, 175 Tramway Road, Pukekohe 1800.
ZL1WGP Details unknown.
ZL1WH Coe, P. H., 21 Marshall Avenue, Taupo 2730.
ZL1WHA Ahmu, H. E., 386 Roscommon Road, Manurewa, Auckland 1702.
ZL1WHL Leinwand, Helen, 73 Tender Road, Dairy Flat, RD 4, Albany, Auckland 1311.
ZL1WHR Redfern, W H, 3/378 Devonport Road, Tauranga 3001.
ZL1WI Milam, R. E., 3 Bush Road, Oratia, Auckland 1007.
ZL1WIL Collis, W. F., 143 Selwyn Street, Onehunga, Auckland 1006.
ZL1WIM MacKenzie, I. L., 33a Norman Road, Takapuna, Auckland 1309.
ZL1WIT Out, J. N., 64 Ellerton Road, Balmoral, Auckland 1003.
ZL1WJL Livsey, W. J. A., 30 Hagman Street, Stafford Heights, Brisbane 4053, Queensland.
ZL1WJM Mason, J., 23 Williams Avenue, Pakuranga 1706.
ZL1WJP Details unknown.
ZL1WJQ Quinn, J A, PO Box 24-021, Royal Oak, Auckland 1030.
ZL1WJR Details unknown.
ZL1WK MacDonald, J. E., 171 Cook Street, Howick, Auckland 1705.
ZL1WKT Details unknown.
ZL1WL Clarke, R. F. R., 14 Sherwood Road, Onerahi, Whangarei 0101.
ZL1WLE Eyre, L. H., 5 Tennyson Street, Whangarei 0101.
ZL1WM Ritchie, Graham, 38 Greenhaven Avenue, Papakura 1703.
ZL1WMD Pope, A. A. (Ms), 85 Campbell Road, One Tree Hill, Auckland 1006.
ZL1WN Biggar, R. G., Sunnyside Road, RD 3, Albany 1311.
ZL1WNZ Blair, R. A., 22 Rebecca Rise, Weymouth, South Auckland 1702.

ZL1WOT Moore, J B, 37a Kimber Hall Avenue, Mt Roskill, Auckland 1004.
ZL1WP Johnstone, M. R., 12 Brookesmith Drive, Waiuku 1852.
ZL1WPG Grewal, P. S., 4/263a Titirangi Road, Titirangi, Auckland 1007.
ZL1WPJ Johnson, P. J., PO Box 60 202, Titirangi, Auckland 1230.
ZL1WPK Petersen, Kiely, 30b Willow Brook Land, RD 8, Hamilton 2021.
ZL1WPR Smith, P. R., Budden Road, RD 1, Te Awamutu 2400.
ZL1WQ Whitehead, E. J., Booms Hill, Kauaeranga, RD 2, Thames 2821.
ZL1WR Cullen, R. G., 6 Amokura Street, Waikanae 6010.
ZL1WRB Bloomfield, D., 191 Kauri Road, Whenuapai, Auckland 1008.
ZL1WRC Costello, R. L., 4 Taratoa Street, Panmure, Auckland 1006.
ZL1WRD Deverell, R., 44 Mackesy Road, Whangarei 0101.
ZL1WRM Details unknown.
ZL1WSK Kuypers, S. G., 25 Tamatea Avenue, Point England, Auckland 1006.
ZL1WT Westerbaan, B. H., 38 Whittaker Street, Kihikihi 2430.
ZL1WTP Petricevich, A. M., PO Box 26-484, Epsom, Auckland 1030.
ZL1WTT Taylor, G., PO Box 97-732, South Auckland Mail Centre, Auckland 1730.
ZL1WTW Klinac, P. (Mrs), 45 Central Avenue, Papatoetoe, Auckland 1701.
ZL1WU Moseley, M. R., PO Box 296, 34 Domain Street, Waiuku 1852.
ZL1WV Fleetwood, F., 2/10 Tina Place, Pakuranga, Auckland 1706.
ZL1WW Spackman, T. J., 18a Mahana Road, Te Rapa, Hamilton 2001.
ZL1WX Prebble, N. W., 2/82 Knights Road, Rothesay Bay, Auckland 1311.
ZL1WY Details unknown.
ZL1WYS Barlett, R. K. M., Address unknown.
ZL1WZ Deslandes, E. N., 579 Spencer Road, Lake Tarawera, RD 5, Rotorua 3221.
ZL1YOT King, M., 207a Woodlands Park Road, Titarangi, Auckland 1007.
ZL1ZLD Surburban Amateur Radio Club (Inc.), see Branch Directory.
ZL1ZLF Surburban Amateur Radio Club (Inc.), Museum group call-sign, See Branch Directory.

ZL2 CALL-SIGNS

ZL2AA Gisborne Amateur Radio Club, see Branch Directory.
ZL2AAA White, M. C., 502 Huia Street, Hastings 4201.
ZL2AAC Bridgman, A. H. S., 261 Mitchell Street, Brooklyn, Wellington 6002.
ZL2AAH Sayers, R. K. F., 33 Bamber Street, Castlecliff, Wanganui 5001.
ZL2AAI McPake, E. G., 36 Wikitoria Road, Wanganui 5001.
ZL2AAJ Davis, S. B., 8 Kawau Place, Wanganui 5001.
ZL2AAN Thompson, R. N., 1010 Gordon Road, Hastings 4201.
ZL2AAO Shackel, M. W. O., C/- Post Office, Opua 0290.
ZL2AAQ Jeffers, R. J., 55a Jellicoe Street, Wanganui 5001.
ZL2AAX Martin, L. H., 64 Glen Road, Stokes Valley, Wellington 6008.
ZL2AB New Plymouth Amateur Radio Club, see Branch Directory.
ZL2ABB Campbell, S. H., 20 Erin Street, Palmerston North 5301.
ZL2ABE Erwood, E., 190 Waimea Road, Nelson 7001.
ZL2ABF Foley, T. J., 115 Taradale Road, Napier 4001.
ZL2ABL Bramley, K. J., 14 Rembrandt Avenue, Linden 6006.
ZL2ABM Elvy, D. L., 7 Norwich Street, Wellington 6005.
ZL2ABN Ridding, G. B., 10 Trevor Terrace, Paremata, Porirua 6006.
ZL2ABS Tong, J., 44 Lakewood Avenue, Johnsonville, Wellington 6004.
ZL2ABT Turner, O. D., Cadman Road, Dannevirke 5491.
ZL2ABU van der Burgh, J. E. C., 8c Egmont Street, Wellington 6001.
ZL2ABV Marshall, L., 37 Turoa Road, Wanganui 5001.
ZL2ABW Steer, D. W., 24 Dorset Avenue, New Plymouth 4601.
ZL2ABY Huggard, J. D., 22a Rimu Street, New Plymouth 4601.
ZL2ABZ Moore, J. A. W., 112b Britomart Street, Berhampore, Wellington 6002.
ZL2AC Turnbull, P., Omokoroa Road, RD 2, Tauranga 3021.
ZL2ACA Barnett, W. J., RD 1, Upper Moutere 7152.
ZL2ACC Sutherland, J. M., 600 Pepper Street, Hastings 4201.
ZL2ACE Greene, R. P., 5 Aranui Avenue, Castlecliff, Wanganui 5001.
ZL2ACF Stagpoole, V. M., 49 Bould Street, Johnsonville, Wellington 6004.
ZL2ACJ Jones, C M, 9b Bedford Street, Northland, Wellington 6005.
ZL2ACK Details unknown.
ZL2ACL Myhill, J., 63 Deepdale Street, Burnside, Christchurch 8005.
ZL2ACN Lakeman, D. T., 55a Manuka Street, Masterton 5901.
ZL2ACO Jeffs, D. E., 14 Freyberg Crescent, Waikanae Beach 6010.
ZL2ACT Smith, G. F., 26 Sheridan Crescent, Upper Hutt 6007.
ZL2ACU Finlay, P. A., 14 Garden Road, Northland, Wellington 6005.
ZL2ACW Gotlieb, R., PO Box 27-137, Marion Square, Wellington 6030.
ZL2AD Conroy, T. R., 8 Wairakei Road, Christchurch 8005.
ZL2ADB Barrow, G. W. B., 60 Bledisloe Crescent, Wainuiomata 6008.
ZL2ADD Lund, O. M., 1 Cherry Grove, Strathmore, Wellington 6003.
ZL2ADK Purdie, Cathy, 65 Hedge Street, Sanson 5450.
ZL2ADL Purdie, B. E., 65 Hedges Street, Sanson 5450.
ZL2ADM Smith, I. G., Hill View, 94 Guppy Road, Greenmeadows, Napier 4001.
ZL2ADN Stuart, J. D., 11 Kipling Street, Palmerston North 5301.
ZL2ADO Wilkinson, J., 69a Park Road, Carterton 5951.
ZL2ADP Vile, M. E., 17 Park Aveue, Waikanae 6010.
ZL2ADR Burley, C. J., Ringawhati Road, RD 1, Otaki 5560.
ZL2ADT Brown, W. C., 9a Rawhiti Street, Nelson 7001.
ZL2ADU Gorton, H. J., 30 Dieffenbach Street, Opunake 4854.
ZL2ADW West, J. D., 140 Pioneer Road, New Plymouth 4601.
ZL2ADY Gallagher, B. G., 5 George Street, Dannevirke 5491.
ZL2AEL Locke, A. E., 19 Duncan Street, Tawa 6006.
ZL2AEM Robinson, P. H., 10b Barriball Street, New Plymouth 4601.
ZL2AF Wilkinson, J., 30 Lancaster Street, Levin 5500.
ZL2AFC Burr, M. K., 48 Holborn Drive, Stokes Valley 6008.
ZL2AFE Clarkson, R. J., 247 High Street, Eltham 4657.
ZL2AFI Nicholls, G. A., 465 Ruahine Street, Palmerston North 5301.
ZL2AFJ Clark, C P N, 6 Mudgway Place, Palmerston North 5301.
ZL2AFK Ford, P. L., 36 Akatea Road, Korokoro, Petone 6008.
ZL2AFL Jordan, N., Casa Loma, Western Hutt Road, Melling, Lower Hutt 6009.
ZL2AFM Hawke, P. D., 62a Kingsford Drive, Stoke, Nelson 7001.
ZL2AFN MacLean, A. K., PO Box 59, Raetihi 5462.
ZL2AFO Burney, R. J., 115 Kowhai Street, Naenae, Lower Hutt 6009.
ZL2AFP Wassilieff, C., 69 Tiber Street, Island Bay, Wellington 6002.
ZL2AFR Gorman, B. D., 66 Pacific Street, Timaru 8601.
ZL2AFT Anderson, B. P., 429 Albert Street, Palmerston North 5301.
ZL2AFU Udy, H. A. F., 1 Tudor Road, Pahiatua 5470.
ZL2AFV Titahi Bay Amateur Radio Club, see Branch Directory.
ZL2AFW Jones, B. N., 13 Taupata Street, Castlecliff, Wanganui 5001.
ZL2AFZ Studd, G. C., 14/18 Carnell Street, Napier 4001.
ZL2AG Details unknown.
ZL2AGC Waldmann, K. J., PO Box 47-047, Upper Hutt 6430.
ZL2AGH Marshall, A. W., 32 Plymouth Road, Hastings 4201.
ZL2AGI Giles, F. A., 1006 Sussex Street, Hastings 4201.
ZL2AGM Weaver, D. B., 6 Tankersley Crescent, Masterton 5901.
ZL2AGO Wolf, J. M., 12 Celeste Place, Glenfield, Auckland 1310.
ZL2AGQ Cleveland, F. L., 38 Havelock Street, Mornington, Wellington 6002.
ZL2AGS Gotlieb, G. D. (Mrs), PO Box 27-137, Marion Square, Wellington 6037.
ZL2AGT Williams, G. C., 18 Ronberg Street, Palmerston North 5301.
ZL2AGU Steel, G. J., Address unknown.
ZL2AGW Gillon, K. R., 5 Mountview Place, Motueka 7161.
ZL2AGY Marr, A. H., PO Box 3, Greytown 5953.
ZL2AH Reed, W. St. J., 7a Humphrey Street, Marton 5460.
ZL2AHA Wards, I. J., Manutahi, RD 2, Patea 5181.
ZL2AHB Douglas, L. S., 9 Swithland Place, Christchurch 8004.
ZL2AHE Wilson, A. J., 30 Adventure Drive, Whitby, Porirua 6006.
ZL2AHH Keong, P. W., PO Box 8108, Havelock North 4230.
ZL2AHI Meads, A. M., 23 Darwin Crescent, New Plymouth 4601.
ZL2AHM Smith, R. A., 121 Slacks Road, Palmerston North 5301.
ZL2AHN Ashley, R. A., Te Horo Beach Road, RD 1, Otaki 5560.
ZL2AHO Owen, D. W., 12 Whirinaki Crescent, Heretaunga, Upper Hutt 6007.
ZL2AHR Hawtree, G. R., 50 Fox Road, Wanganui 5001.
ZL2AHU O'Hara, E. R., 8 Miller Place, Masterton 5901.
ZL2AHX Greaney, E. C., 168 Waghorne Street, Napier 4001.
ZL2AHY Howard, C. B., 24b Clearmont Crescent, New Plymouth 4601.
ZL2AI 1st Kelburn 1909 Scout Group Radio Club, (Trustee T.R. Millar), 39 Ngaio Road, Kelburn, Wellington 6005.
ZL2AIA Steele, R., PO Box 13-467, Onehunga, Auckland 1132.
ZL2AIB Campbell, W. A., 225a Tukapa Street, New Plymouth 4601.
ZL2AID Williams, P. R., 126 Fairfield Road, Hawera 4800.
ZL2AIE Parker, W. J., PO Box 1, Blenheim 7315.
ZL2AIJ Newbery, M. D., 35 Crofton Road, Ngaio, Wellington 6004.
ZL2AIK Smyth, W. M., 49c Doralto Road, New Plymouth 4601.
ZL2AIL McManaway, P. H., RD 1, Matarawa, Carterton 5951.
ZL2AIN James, L. A., 110 Redwood Street, Blenheim 7301.
ZL2AIO Voss, R. B., Mill Road, Kopane, RD 6, Palmerston North 5321.
ZL2AIP Curry, R. G., 6b Tawa Street, Waikanae 6010.
ZL2AIR Morris, S. W., Main Highway, Clareville, Carterton 5951.
ZL2AIS Cramer, F. H., 34 James Street, Inglewood 4651.
ZL2AIT Whiting, P. C., C/- 38 Sanders Avenue, New Plymouth 4601.
ZL2AIY Hunter, D. R., 16 Torlesse Street, Wakatu, Nelson 7001.
ZL2AIZ Wright, L. L., 30 Discovery Drive, Whitby 6006.
ZL2AJA Plum, B. F., 6 Porritt Place, Stoke, Nelson 7001.
ZL2AJB Hodge, L. D., 23 Kent Crescent, Palmerston North 5301.
ZL2AJC Hulse, R. L., 63 Riverside Drive, Lower Hutt 6009.
ZL2AJD Dodds, J. F., C/- PO Box 237, Waikanae 6454.
ZL2AJF Vernon, J. H., 130 Mairangi Road, Wilton, Wellington 6005.
ZL2AJG Giblin, A. G., 27 West Avenue, Richmond, Nelson 7002.
ZL2AJH Andrews, L. M., PO Box 10-575, The Terrace, Wellington 6036.
ZL2AJJ McHardy, R. A., 762 Gladstone Road, Gisborne 3801.
ZL2AJQ Details withheld by request of callholder.
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ZL2AJS Lawn, B. A., 60b Govett Avenue, New Plymouth 4601.
ZL2AJV Small, I. R., 60 Whakaipo Avenue, Taupo 2730.
ZL2AJZ Wellington Polytechnic Radio Club, Private Box 756, Wellington 6015.
ZL2AK Rowson, L. T., 21 Kellyville Heights, New Plymouth 4601.
ZL2AKC Larkin, J. F. L., 24 Surrey Road, Wanganui 5001.
ZL2AKE Watson, M. B., 25 Armagh Terrace, Marton 5460.
ZL2AKF Peffers, W. F., Spade Oak Vineyard, Main Road, Makauri RD 1, Gisborne 3821.
ZL2AKG McGonigal, J. W. R., 17 Surrey Street, Taradale, Napier 4001.
ZL2AKJ Freeth, C. A., 56 Fifeshire Crescent, Nelson 7001.
ZL2AKK Moss, J. B., 9 Seyton Street, Stratford 4700.
ZL2AKM Glassey, R. B., 52 Bourne Crescent, Papanui, Christchurch 8005.
ZL2AKN Smith, L. K., PO Box 1119, Tauranga 3015.
ZL2AKO Oakley, J. W., Slipstream, PO Box 279, Waikanae 6454.
ZL2AKR Roberts, E., 116 Kowhai Street, Naenae, Lower Hutt 6009.
ZL2AKS Taylor, D., 31 Ahuriri Street, Wellington 6003.
ZL2AKT Bundle, R. J., House 1, 4159c Trickers Road, PO Box 28, Bulls 5452.
ZL2AKU Crosby, B. D., 28 Sheridan Crescent, Upper Hutt 6007.
ZL2AKV Copeland, R. N., 11 Te Puni Grove, Upper Hutt 6007.
ZL2AKW King, T. C., 72 Chelmsford Street, Wellington 6004.
ZL2AKZ Barden, T. W. A., Paradise Road, Coopers Beach, PO Box 5, Mangonui 0557.
ZL2AL Jennings, L. F., 203 Beresford Street, Hastings 4201.
ZL2ALA Kenny, A. R., 60 Pokohiwi Road, Normandale, Lower Hutt 6009.
ZL2ALC Maxwell, H. J., 122 Kawiu Road, Levin 5500.
ZL2ALD Gillespie, M. E., PO Box 667, Papakura, Auckland 1730.
ZL2ALI Clark, E. A., 88 Mallberry Road, Mangere East, Auckland 1701.
ZL2ALJ Fletcher, A. B., 127 Melbourne Road, Island Bay, Wellington 6002.

ZL2ALL Tompkins, A. W., Halcombe Road, RD 5, Feilding 5600.
ZL2ALM Lovegrove, P. J., 145 Carlisle Road, Browns Bay, Auckland 1311.
ZL2ALO Shearman, A. J., 12 Somerset Road, Springvale, Wanganui 5001.
ZL2ALP Paton, P. J., 41 Hyde Street, Wainuiomata 6008.
ZL2ALQ Appleton, J. W., 17 Bone Crescent, Hawera 4800.
ZL2ALR Jury, J. M., "Glendower", Ponatahi Road, RD 2, Carterton 5951.
ZL2ALT Tong, A. C., 12 Princes Street, Hawera 4800.
ZL2ALW Barnett, A D, 70 Waima Crescent, Titirangi, Auckland 1007.
ZL2ALX Tarrant, G. W., Rawhitirua, RD 8, Masterton 5921.
ZL2ALY Walker, C. M., 244a Te Moana Road, Waikanae 6010.
ZL2ALZ Healey, G. W. R., 78 Sidlaw Street, Strathmore Park, Wellington 6003.
ZL2AM Details unknown.
ZL2AMA Dwyer, M. B., PO Box 7313, Wellington South 6039.
ZL2AMB Chinery, P. R. J., 192 High Street, Eltham 4657.
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ZL2AMD Lamont, D. H., 510 Kennedy Road, Napier 4001.
ZL2AME Heath, C. A., 9 Patutu Grove, Upper Hutt 6007.
ZL2AMI Stewart, R. G., 105 Orangi Kaupapa Road, Wellington 6005.
ZL2AMJ Johnson, Fred, 15 Field Street, Upper Hutt 6007.
ZL2AMK Vendt, G. R., 60 Bird Grove, Stokes Valley 6008.
ZL2AMM Morris, S. J., 1 Sidlaw Street, Strathmore, Wellington 6003.
ZL2AMO Spackman, M. L., 2/168 Gloucester Street, Taradale, Napier 4001.
ZL2AMR Feilding and Districts Radio Club, see Branch Directory.
ZL2AMS Marton Branch NZART (Inc.), see Branch Directory.
ZL2AMT Garmonsway, T. L., "Hiria", Rangiwaea, RD 1, Taihape 5457.
ZL2AMU Ashe, D. A., 34 Wai-iti Crescent, Lower Hutt 6009.
ZL2AMZ Humphris, G. J., 24 Wood Leigh Mews, Paraparaumu Beach 6010.
ZL2AN Shepherd, E. R., 375 Brookfields Road, RD 3, Napier 4021.
ZL2ANB Fenton, F. A., 27 Blake Street, Waitara 4656.
ZL2ANG Tipler, B. F., Kahouri Road, PO Box 400, Stratford 4700.
ZL2ANI McLeod, S. A., 4 Trevelyan Street, Onekawa, Napier 4001.
ZL2ANJ McNabb, G. M. (Mrs), 300 High Street, Motueka 7161.
ZL2ANN Opunake Radio Club Inc, see Branch Directory.
ZL2ANP Williamson, J. J., Waituna, 9 RD, Feilding 5600.
ZL2ANQ Keane, P. M. (Rev), PO Box 1151, Campion Road, Gisborne 3815.
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ZL2AO Details unknown.
ZL2AOA Wall, T. F., Mahaki, RD 1, Martinborough 5954.
ZL2AOC Toorenburg, L. M. L., 4b Fox Street, Ngaio, Wellington 6004.
ZL2AOF Reardon, V. W., Autler Road, Manaia 4851.
ZL2AOG Green, G. R., 7 Russell Street, Marton 5460.
ZL2AOH Sutton, Ralph, 12c Herbert Gardens, 186 The Terrace, Wellington 6001.
ZL2AOI Malkin, E., 4/412 Avenue Road West, Hastings 4201.
ZL2AOJ Ryder, S. F., 67 Gillespies Road, Upper Hutt 6007.
ZL2AOK Wallis, G. A., 42 Coronation Street, Spreydon, Christchurch 8002.
ZL2AOL McBeth, D. O., 12 Herekawe Drive, New Plymouth 4601.
ZL2AOO Sinclair, M. L., 1 Porritt Place, Tamatea, Napier 4001.
ZL2AOP Mackintosh, A. B., 34 Marian Drive, Gisborne 3801.
ZL2AOT Sanders, K. D., 15 Newbourne Crescent, Blenheim 7301.
ZL2AOU Howan, V. E. (Mrs), 7 Almora View, Ascot Park, Porirua 6006.
ZL2AOV McNeill, D. A., 58 Fraser Avenue, Johnsonville, Wellington 6004.
ZL2AOW Purvis, R. H., 37 Sispara Place, Beachhaven, Auckland 1310.
ZL2AOX Details unknown.
ZL2AOZ Davidson, W. E., RD 10, Palmerston North 5321.
ZL2AP De Greeuw, J. F. M., 12 Grange Road, Haumoana 4250.
ZL2APA Chippendale, J. G., 66 Reid Avenue, Hawera 4800.
ZL2APC Burton, H., 3 Chamberlain Road, Karori, Wellington 6005.
ZL2APD Holmwood, E. A., 11 Newton Place, Palmerston North 5301.
ZL2APE Parnell, Jim, 87 Duncan Terrace, Kilbirnie, Wellington 6003.
ZL2APF Lusty, F. W., 40 Ihaia Street, Waitara 4656.
ZL2APH Haisman, R. A., 27 Valley Road, Gisborne 3801.
ZL2APJ Jury, A. P., 83a Fulford Street, New Plymouth 4601.
ZL2APL Westwood, I. J., 95 Hillcrest Drive, Palmerston North 5301.
ZL2APO Leigh, P., 4 Parcell Court, Cromwell 9191.
ZL2APT Ropata, P. T., Address unknown.
ZL2APV Jury, G. V., 12 Aubrey Street, New Plymouth 4601.
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ZL2APZ Benson, K. J., 33 Trafalgar Street, New Plymouth 4601.
ZL2AQD Watson, J. E., 28 Harry Shaw Way, Raumati 6010.
ZL2AQH Voss, S. J., Mill Road, Kopane, RD 6, Palmerston North 5321.
ZL2AQI Cheyne, J. A., 12 Aberdeen Avenue, Palmerston North 5301.
ZL2AQK Millard, A. J., 34 Volga Street, Wellington 6002.
ZL2AQL Spearman, M. B., 41 Woods Avenue, Tauranga 3001.
ZL2AQN Heald, P. J., 64 Wyon Street, Christchurch 8006.
ZL2AQO Wilson, K. A. (Mrs), 80 Wycliffe Street, Onekawa, Napier 4001.
ZL2AQP Clouston, T. W., 28 Fox Street, Opunake 4854.
ZL2AQR Crawley, R. J. C., RD 9, Mayfield, Ashburton 8352.
ZL2AQS Duckworth, P. D., 7 Einstein Street, Gisborne 3801.
ZL2AQT Benton, S. W., "Wainawhenua", Kahautara Road, RD 1, Featherston 5952.
ZL2AQV Smith, R. E., 8 Dell Road, Raumati South, Paraparaumu 6010.
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ZL2AQY Olson, E. L., 58 Titania Street, Stratford 4700.
ZL2AR Details unknown.
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ZL2ARE Harris, L. W., 43a Cameron Road, Napier 4001.
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ZL2ARN Stewart, D. G., 75 Nimmo Avenue East, Waikanae 6010.
ZL2ARQ Pahl, D. G., PO Box 61, Motueka 7161.
ZL2ART McQuinlan, T., 6 Whanake Street, Titahi Bay 6006.
ZL2ARW Williams, P. R., 15 Pinny Avenue, Lower Hutt 6009.
ZL2ARY Jenks, M. D., 25 Kirner Street, Christchurch 8009.
ZL2ARZ Collins, J. L., 5 Norrie Place, Tamatea, Napier 4001.
ZL2AS Hastings Branch NZART (Inc.), see Branch Directory.
ZL2ASA Dinsdale, B., 14 Benmore Avenue, Palmerston North 5301.
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ZL2ASD Darby, A. R., 47 MacLaren Street, Maymorn, RD 1, Upper Hutt 6007.
ZL2ASE Williams, R. B., 35 Trelawney Road, Wainuiomata 6008.
ZL2ASF Fogerty, S. F., 5 McCarthy Crescent, Motueka 7161.
ZL2ASH Clark, B. S., 5 Mamaku Grove, Khandallah, Wellington 6004.
ZL2ASJ Details unknown.
ZL2ASO Sewell, J. R., 1 Riverside Grove, Hine Road, Wainuiomata 6008.
ZL2ASQ Dawson, E. K., 680 East Coast Road, Browns Bay, Auckland 1311.
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ZL2AST Groombridge, J. E., 15 Oakleigh Street, Maungaraki, Lower Hutt 6009.
ZL2ASW Avery, G. S., 24 Tudor Grove, Feilding 5600.
ZL2ASY Currie, R. G., 75 Hair Street, Wainuiomata 6008.
ZL2ASZ Wardlaw, D. A., NZART, PO Box 40-525, Astral Towers, Upper Hutt 6415.
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ZL2ATC Harris, E. J. (Mrs), 43c Cameron Road, Napier 4001.
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ZL2ATM Details unknown.
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ZL2AU Wilson, W. C., 21 London Road, Korokoro, Lower Hutt 6008.
ZL2AUA Burch, M. A. G., 49 Kahu Road, Paremata, Porirua 6006.
ZL2AUB Moore, P. J., 54 Herbert Avenue, Palmerston North 5301.
ZL2AUD Martin, W., 4 Bella Grove, Naenae, Lower Hutt 6009.
ZL2AUE King, M., 110 Gordon Street, Masterton 5901.
ZL2AUF Blair, S. G., 15 Poplar Grove, Thorndon, Wellington 6001.
ZL2AUH O'Shea, P. F., 106a Frimley Avenue, Hastings 4201.
ZL2AUI Danrell, F. R., 1215 North Willowpark Road, Hastings 4201.
ZL2AUJ Catchpole, D., 25 Tai Paku Paku Road, Miramar, Wellington 6003.
ZL2AUK Leckie, D. A., 31 City View Grove, Harbour View, Lower Hutt 6009.
ZL2AUR Tong, Tse-Ying, 390a Fergusson Drive, Trentham, Upper Hutt 6007.
ZL2AUT Morton, L. W., 112 Union Street, Foxton 5551.
ZL2AUW Nash, A. L. J., 20 Seddon Street, Levin 5500.
ZL2AUX Lewer, D. H., 113 Pukepapa Road, Marton 5460.
ZL2AUZ Blair, R. L., 12 Cleland Street, Palmerston North 5301.
ZL2AV Jenkins, I. J., 35 Oak Avenue, Paremata 6006.
ZL2AVA McLauchlan, A W A, Te Whanau Rest Home, 603 Queen Street, Levin 5500.
ZL2AVB Hargreaves, A. P., 22c High Street, Eltham 4657.
ZL2AVC McDermott, R. J. O., 35 Highbury Road, Kelburn, Wellington 6005.
ZL2AVF Gibbs, L. V., 19 Camellia Terrace, Lower Hutt 6008.
ZL2AVG Reynolds, M. G., 131 Mt Herbert Road, Waipukurau 4176.
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ZL2AVI Savage, R. B., 12 Hull Street, Oamaru 8901.
ZL2AVJ McNabb, M. D., PO Box 42, Collingwood 7171.

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ZL2AVR Dinnie, J. S., 27 Rodney Avenue, Te Horo Beach. Postal: PO Box 8, Te Horo 5560.
ZL2AVS Heath, B. O., 389 Muritai Road, Eastbourne 6008.
ZL2AVX Rhodes, C. J., 23 Govind Grove, Ngaio, Wellington 6004.
ZL2AVY Owen, M. L., 550 Kane Street, Pirongia 2450.
ZL2AW Bonnington, R. L., 182a Cable Bay Road, RD 1, Nelson 7021.
ZL2AWA Farquhar, W. E., 17 Stansell Avenue, Nelson 7001.
ZL2AWE Cooke, P., 31 Kent Crescent, Palmerston North 5301.
ZL2AWF Alexander, D. G., 34 Tennyson Street, Petone 6008.
ZL2AWG Roberts, J. C., 40 Grahams Road, Christchurch 8004.
ZL2AWH Brosnan, D. C., 111 Flaxmere Avenue, Hastings 4201.
ZL2AWI Sherley, H. F., 37 Kiwi Road, Raumati Beach 6010.
ZL2AWJ Woodhouse, C. W., 51 Hautana Street, Lower Hutt 6009.
ZL2AWR Roberts, A. W., 184 Ikitara Road, Wanganui East 5001.
ZL2AWS Sayers, P. A., 97 Happy Valley Road, Ohiro Bay, Wellington 6002.
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ZL2AWW Details unknown.
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ZL2AXA Dewar, A. M., 248a Ohiro Road, Wellington 6002.
ZL2AXB Crawley, D. R. K., Campbell Road, RD 1, Wanganui 5021.
ZL2AXG Young, W. D. D., 20 Rexwood Street, Carterton 5951.
ZL2AXH Aitchison, W. B., 10 Margaret Street, Wadestown, Wellington 6001.
ZL2AXI Leslie, G., 45 Goldsmith Crescent, Levin 5500.
ZL2AXK Sommerville, W. V., 21 Bridge View Road, Birkenhead, Auckland 1310.
ZL2AXL Harvey, P. R., 4a Norton Road, Otumoetai, Tauranga 3021.
ZL2AXN Crane, R. G., 11 Dickens Lane, RD 1, Wanganui 5021.
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ZL2AXW Andrew, P. J., 6 Eton Place, Palmerston North 5301.
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ZL2AYB Fisher, W. G., 40 Beauchamp Street, Karori, Wellington 6005.
ZL2AYD Barker, B. A., 62 Gregg Street, Dannevirke 5491.
ZL2AYE Wastney, R. J., 126 The Ridgeway, Stoke, Nelson 7001.
ZL2AYF Amies, B. W., 15 Lyndhurst Road, Tawa 6006.
ZL2AYG Bowden, R. E., 10 Kennedy Grove, Stokes Valley, Lower Hutt 6008.
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ZL2AYQ Hill, K. J., 27 Welland Place, Island Bay, Wellington 6002.
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ZL2AYU Leask, D. W., 11 Cannon Street, New Plymouth 4601.
ZL2AYX Pohl, K. P., 58 Norton Park Avenue, Lower Hutt 6009.
ZL2AYY Waghorn, T. J., PO Box 174, Martinborough 5954.
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ZL2AZE Stretch, F., 41 Scotland Street, Picton 7372.
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ZL2AZK Lankshear, B. R., Moetapu Bay Road, RD 2, Picton 7372.
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ZL2AZP Pinny, H. G., 8 Wakefield Grove, Waikanae 6010.
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ZL2BAI Garth, Dorothy, 101 Birrell Street, Gisborne 3801.
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ZL2BBO Lealand, T. P., 16a Hunter Street, Hawera 4800.
ZL2BBS Doig, A. M., 72 Gordon Road, Plimmerton 6006.
ZL2BBT Grove, K. E., 3 Lomond Street, Newlands, Wellington 6004.
ZL2BBU Pearmain, C. E., 47 Alton Street, Nelson 7001.
ZL2BBZ Dickson, L. P., 57 Victoria Road, New Plymouth 4601.
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ZL2BCF Pratt, D. H., 30 Deepdale Street, Burnside, Christchurch 8005.
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ZL2BCL Dagg, A. H., 77 Barker Road, Marewa, Napier 4001.
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ZL2BCT Clements, D. J., 2 Church Street, Greytown 5953.
ZL2BCV Williams, C. W., 36 Tawa Street, Hawera 4800.
ZL2BCW Kerr, M. J. B., 40 Rodrigo Road, Kilbirnie, Wellington 6003.
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ZL2BED Dunkley, G. J. H., L 'Elole, French Farm, RD 2, Akaroa 8161.
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ZL2BEG Cropp, B. A., 7 Blue Mountains Road, Silverstream 6007.
ZL2BEJ Squire, D. N., 266 Old Coach Road, RD 9, Te Puke 3071.
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ZL2BFC Cattermole, B. L., 20 Miltonia Avenue, Te Atatu South, Auckland 1008.
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ZL2BFF Cummerfield, G. C., 3 Croxley Place, Palmerston North 5301.
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ZL2BGL Conway, I. W., Caseys Road, RD, Seddon 7353.
ZL2BGM Details unknown.
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ZL2BHD Bateman, G. W., 54 Murray Avenue, Hawera 4800.
ZL2BHE Walker, D. C., 46 Barnard Street, Wadestown, Wellington 6001.
ZL2BHF Meachen, Jim, 1/25 Coronation Road, Glenfield, Auckland 1310.
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ZL2BHH Burnham, E. D., 15 Tawa Street, Levin 5500.
ZL2BHI Orams, K. J., 13 Eagle Street, Karori, Wellington 6005.
ZL2BHJ Andrews, Jill, 66 Khandallah Road, Khandallah, Wellington 6004.
ZL2BHL Fowler, R. L., Main Road, RD 3, Riwaka 7160.
ZL2BHM Matthews, E. F., Moeawatea, RD 1, Waverley 5182.
ZL2BHN Allardyce, J. P. G. (Rev), Marist Centre, 88 Hobson Street, Wellington 6001.
ZL2BHO Henderson, R. L., 426 Gloucester Street, Taradale, Napier 4001.
ZL2BHQ Miller, A., 27 Fairfield Avenue, Lower Hutt 6009.
ZL2BHR Inwood, R. G., 22 Benmore Avenue, Palmerston North 5301.
ZL2BHS Bowden, C. J., 76 South Road, Masterton 5901.
ZL2BHT McLaren, D. M., 26 Van Diemen Street, Nelson 7001.
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ZL2BIF McKain, S. J., 31 Hikutaia Road, Opotiki 3092.
ZL2BIG Bingham, W. J., 31 Elizabeth Street, Feilding 5600.
ZL2BIL Cox, W. R., 5a Konini Grove, Raumati Beach 6010.
ZL2BIN Fletcher, G. L., Address unknown.
ZL2BIO Barnes, D. J., 16 Jackson Street, Nelson 7001.
ZL2BIQ Thorner, G. S., 28 David Street, Invercargill 9501.
ZL2BIR Kidd, P. R., 70 McLeod Street, Upper Hutt 6007.
ZL2BIS Porter, I. G., 20 Belfield Street, Christchurch 8006.
ZL2BIT Willan, L. R., 8 Warren Place, New Plymouth 4601.
ZL2BIU McCaw, I. J., 233 Chartwell Avenue, Whangamata 2982.
ZL2BJ Hawken, B J, 655 Main Road, Stoke, Nelson 7001.
ZL2BJA Angland, B. J., 24 Pitama Road, Palmerston North 5301.
ZL2BJB Horne, D. A., Andon, Old Hautere Road, RD 1, Otaki 5560.
ZL2BJD Robson, E. H., 64 Alexander Avenue, Napier 4001.
ZL2BJG McGregor, B. A., 10 Saville Row, Johnsonville, Wellington 6004.
ZL2BJL French, Peter, 77a Pahiatua Street, Palmerston North 5301.
ZL2BJO Cathcart, S. J., 17 Westhaven Grove, Palmerston North 5301.
ZL2BJS Jamieson, D. R., 2 Waipuna Street, Blenheim 7301.
ZL2BJU Thompson, J. J., 17 Somerset Crescent, Kapiti Village, Paraparaumu 6010.
ZL2BJV Menzies, K. J., Main Road, Grovetown, Blenheim 7321.
ZL2BK Simpson, G. R., 8a Faulkland Drive, Blenheim 7301.
ZL2BKA Dale, J. S. A., 689 East Coast Road, Browns Bay, Auckland 1311.
ZL2BKE Glassey, Eve, 422 Jackson Street, Petone 6008.
ZL2BKI Hurst, J. J., 281 Te Moana Road, Waikanae 6010.
ZL2BKL Allen, B. W., 239 Inland North Road, RD 43, Waitara 4656.
ZL2BKN Burling, B. N. G., 11 Ted Harpur Place, Onekawa, Napier 4001.
ZL2BKW Harrowfield, T. R., RD 8, Roberts Line, Palmerston North 5321.
ZL2BKY Cox, K. L., 37 Cuba Street, Petone 6008.
ZL2BKZ Rodrigues, J. F. C., 4/25 Clawton Street, New Plymouth 4601.
ZL2BL Beswick, D. J., 283 Happy Valley Road, Wellington 6002.
ZL2BLB Ames, M. L. (Dr), Queen Street East, RD 1, Levin 5500.
ZL2BLC Ottaway, J. T. J., 5 Hammerton Street, Lower Hutt 6009.
ZL2BLE Dew, A. W., Willow Grove, Homebush, Masterton 5901.
ZL2BLF Kooy, W., 39 Waiho Terrace, Porirua 6006.
ZL2BLH Ellison, D. M., C/- Post Office, Pukehou 4221.
ZL2BLI Inkster, D. J., PO Box 21, Ohakune 5461.
ZL2BLJ Hodgkinson, J., 171 Tukapa Street, New Plymouth 4601.
ZL2BLK Learmonth, B. H., Main Road, Kopane, RD 6, Palmerston North 5321.
ZL2BLM Rait, N. A. H., 2 Revans Street, Featherston 5952.
ZL2BLN Scarrott, P. E., Buchanan Road, Bay View, Napier 4151.
ZL2BLO Moore, P. C., 8 Maxwell Place, Napier 4001.
ZL2BLP Rodgers, G. K., 6 Ava Place, Christchurch 8006.
ZL2BLQ Mangin, S. G., 33 West Street, Greytown 5953.
ZL2BLS Lavery, M. W., 16 Morrissey Street, Hawera 4800.
ZL2BLX McLauchlan, A. C. L., 81a Oxford Street, Tawa 6006.
ZL2BMA Calvert, R. H. G., Fabians Road, RD 1, Greytown 5953.
ZL2BMC Childs, J. R., 5 Savage Crescent, Waipukurau 4176.
ZL2BME Clarke, G. R., 57 Kauri Street, Miramar, Wellington 6003.
ZL2BMH Irving, J. E., 38 Lawry Street, New Plymouth 4601.
ZL2BMI Sears, E. J. (Rev), 30 Lawrence Street, Havelock, Marlborough 7154.
ZL2BMJ Railton-Jacks, P. N., 31 Seaforth Avenue, Palmerston North 5301.
ZL2BMK Bowman, R. F., 146 Conclusion Street, Ascot Park, Porirua 6006.
ZL2BMO Garrod, J., 15 Kauri Street, Edgecumbe 3082.
ZL2BMP Barnes, T. H., 9a Richard Farrell Avenue, Remuera, Auckland 1005.
ZL2BMR Vining, L. G., 49 Havelock Avenue, Palmerston North 5301.
ZL2BMS Moore, M. B., 187 Riverside Drive, Lower Hutt 6009.
ZL2BMW Foster, P. K., PO Box 50-587, Porirua 6215.
ZL2BMZ Murray, P. L., "Highland Orchard", Paparata Road, RD 1, Bombay 1850.
ZL2BNA Hitchman, G. J., 33 Norfolk Crescent, Feilding 5600.
ZL2BNC Cook, R. A., 50 Spencer Street, Crofton Downs, Wellington 6004.
ZL2BND Smith, T. W., 4 St Johns Terrace, Tawa, Wellington 6006.
ZL2BNE Marr, N. C., 7 Rothwell Place, Blenheim 7301.
ZL2BNG Gibellini, J. A., 71 Point Road, Monaco, Nelson 7001.
ZL2BNH Bastin, F. T., 103 Gascoigne Street, Hastings 4201.
ZL2BNM McKay, P. G., 46 Rountree Street, Ilam, Christchurch 8004.
ZL2BNN Robinson, H. T., 6 Becroft Drive, Forrest Hill, Auckland 1309.
ZL2BNP Details unknown.
ZL2BNQ Claydon, K. W., 86 Rewa Street, Inglewood 4651.
ZL2BNS Townshend, A. P., 36 Marybank Road, Atawhai, Nelson 7001.
ZL2BNV Lowe, P. A., 7 Richmond Avenue, Karori, Wellington 6005.
ZL2BNW Walbridge, S. W., 4 St Vincent Avenue, Remuera, Auckland 1005.
ZL2BNX Isherwood, K., 49 Avondale Road, Taradale, Napier 4001.
ZL2BNZ Trubshaw, J. R., 363 Kimbolton Road, Feilding 5600.
ZL2BO Simpson, W. N., 20 Wharepapa Grove, Motueka 7161.
ZL2BOA Thorp, Marilyn, 28 Hetley Crescent, Taradale, Napier 4001.
ZL2BOB Priest, B. W., 21 Winchester Street, Palmerston North 5301.
ZL2BOE Large, R. A., 44 Donnelley Drive, Wainuiomata 6008.
ZL2BOF Nixon, S. M., 10 Carleton Terrace, Tawa 6006.
ZL2BOI Moretti, G. S., 9 Droylsden Place, Palmerston North 5301.
ZL2BOJ Harris, R. E., Address unknown.
ZL2BOL Biggins, B. F., 70 Lohia Street, Khandallah, Wellington 6004.
ZL2BOM Phillips, O. K., 118 Long Melford Road, Palmerston North 5301.
ZL2BOO Hope, M. R., Rapaura Road, RD 3, Blenheim 7321.
ZL2BOP Bradley, R. L. (Rev), Address unknown.
ZL2BOT Kennedy, S. R., 13a Aramoana Avenue, Devonport, Auckland 1309.
ZL2BOU Carter, A. F., 30a Newman Avenue, Brightwater, Nelson 7151.
ZL2BOV Griffiths, Anne, Flat 2/6 Princess Street, Waitara 4656.
ZL2BOW Howan, A. R., 7 Almora View, Ascot Park, Porirua 6006.
ZL2BOY Clarke, R. G., 3 Whitby Place, New Plymouth 4601.
ZL2BP Details withheld by request of callholder.
ZL2BPC Kuipers, E. V. (Ms), C/- 153 Nayland Road, Stoke, Nelson 7001.
ZL2BPD Donovan, P. E., 389 Muritai Road, Eastbourne 6008.
ZL2BPE Vennix, J. H., 89 Mitchell Street, Brooklyn, Wellington, PO Box 9029, Marion Square, Wellington 6030.
ZL2BPG Harding, B. P., 6a Kawiu Road, Levin 5500.
ZL2BPH Simmonds, J. H., Kahutara Road, RD 1, Featherston 5952.
ZL2BPI Watt, I. D., PO Box 85, Featherston 5952.
ZL2BPJ Maddock, R. H., 3 Percy Cameron Street, Avalon, Lower Hutt 6009.
ZL2BPL Kerslake, M. G. R., 1 Marama Terrace, Eastbourne 6008.
ZL2BPT Craw, G. J., Coupers Road, RD 3, Palmerston North 5321.
ZL2BPU Goodall, R. N., 31 Plymouth Road, Flaxmere, Hastings 4201.
ZL2BPX Thompson, Shirley, 8 Dampier Avenue, Palmerston North 5301.
ZL2BPZ McIvor, W. G., 4 Halifax Street, Wainuiomata 6008.
ZL2BQA Nield, G. S., Te Wharau Road, RD 3, Masterton 5921.
ZL2BQK Hawkes Bay VHF Group, C/- L. Winton, 47 Richmond Street, Napier 4001.
ZL2BQL Van Loemen, E., 71 Wingate Street, Christchurch 8005.
ZL2BQW McNeil, W. G., 86 Domett Street, Opunake 4854.
ZL2BQX Hoogeveen, S. (Bill), 58 Burns Street, PO Box 156, Hawera 4800.
ZL2BR Hunt, A. F., 8 Manu Crescent, New Plymouth 4601.

ZL2BRA Cash, I. M., 77 Grey Street, Waitara 4656.
ZL2BRE Details unknown.
ZL2BRG Details unknown.
ZL2BRI Details unknown.
ZL2BRQ Grahame, K. S., 4 Crewe Crescent, Palmerston North 5301.
ZL2BRS Russell, S. G., 85 Rugby Street, Palmerston North 5301.
ZL2BRU Allison, R., 8 Edinburgh Street, Dannevirke 5491.
ZL2BS Ward, T. W., PO Box 4127, New Plymouth 4615.
ZL2BSJ Knol, W., 3/154 Onepu Road, Lyall Bay, Wellington 6003.
ZL2BSL Matheson, J. D., 61 Titoki Street, Masterton 5901.
ZL2BSP Lloyd, W. M., PO Box 32, Edgecombe 3082.
ZL2BSQ Lawrence, R. W. C., 25 Linwood Drive, Paraparaumu 6010.
ZL2BSW Gedye, E. D. M., 15 Seine Street, Island Bay, Wellington 6002.
ZL2BTB Large, M. (Mrs), 44 Donnelley Drive, Wainuiomata 6008.
ZL2BTF Budge, D. (Dr), Heroncroft, 79 Motueka Quay, Motueka 7161.
ZL2BTG Woodham, R. B., 18 Goulter Street, Seddon 7353.
ZL2BTH Emslie, H. H., 8b Burleigh Road, Blenheim 7301.
ZL2BTJ York, K. E., 28 Cubitt Street, Blenheim 7301.
ZL2BTK Willings, H. K., 27 Oxford Street, Picton 7372.
ZL2BTL Steenhart, L., Address unknown.
ZL2BTO Duncan, C. W., 15 Seaton Street, Atawhai, Nelson 7001.
ZL2BTP Snow, R. J., 5 Rimu Street, Nelson 7001.
ZL2BTQ Elwood, R. F., 44 High Street, Renwick 7352.
ZL2BTU Daken, T. R., 259d Anakiwa Road, RD 1, Picton 7372.
ZL2BTV Ching, G. R., 51 McLaughlan Street, Blenheim 7301.
ZL2BU James, B T, F1/413 Main Road, Stoke, Nelson 7001.
ZL2BUI Brosnan, J., 205 Coast Road, Wainuiomata 6008.
ZL2BUK Stratton, G. J., C/- 475a High Street, Motueka 7161.
ZL2BVL Walker, A. G., 5 Matthews Road, Wainuiomata 6008.
ZL2BW Harling, D. S., 142 Quebec Road, Nelson 7001.
ZL2BWK Kell, B, 11 Linklater Avenue, Foxton 5551.
ZL2BWL Luke, B W, 13/83 Tait Drive, Greenmeadows, Napier 4001.
ZL2BX Creswell, A. F., 36 Titiro Moana Road, Korokoro, Petone 6008.
ZL2BY Smith, N. W., 16 Weka Street, Nelson 7001.
ZL2BYD Perrett, I. G., 22 Meade Place, Bell Block, New Plymouth 4601.
ZL2BZH Banks, G. J., 6b Virginia Place, New Plymouth 4601.
ZL2BZN O'Donnell, A. A., 39 Lismore Street, New Plymouth 4601.
ZL2CA Vernall, R. B., 90 Campbell Street, Karori, Wellington 6005.
ZL2CAN Details unknown.
ZL2CAT Ridge, J. D., 48 Awanui Drive, Waikanae 6454.
ZL2CB Brown, C. H., 558 Wainui Road, Tamarau, Gisborne 3801.
ZL2CC Mather, M. S., 22 MacDonald Street, Gisborne 3801.
ZL2CD Hamer, W. R., 187 Seatoun Heights Road, Miramar, Wellington 6003.
ZL2CDK McCormick, C. D. K., 76 Main North Road, Westshore, Napier 4001.
ZL2CDM Mills, C. D., 59 Robinson Crescent, Palmerston North 5301.
ZL2CE Bicknell, J. A., Papawai Road, PO Box 67, Greytown 5953.
ZL2CEK Details unknown.
ZL2CF Details unknown.
ZL2CG Cornick, M. L., 23 Oakley Avenue, Marton 5460.
ZL2CH White, Allison, 6 Rinaha Place, Rotorua 3201.
ZL2CHJ Golding, W. J., 303 Gascoigne Street, Hastings 4201.
ZL2CI Sinton, A. J., 6 Chester Street, Greenmeadows, Napier 4001.
ZL2CIA Details unknown.
ZL2CID Morrison, N. J., 47 Leicester Street, Stoke, Nelson 7001.
ZL2CJ Austin, P. H., F2/48 Masefield Street, Stoke, Nelson 7001.
ZL2CJH King, M. R., 91 Lytton Road, Gisborne 3801.
ZL2CJR Robertson, C. J., 23 Richmond Avenue, Karori, Wellington 6005.
ZL2CL Guest, R., 24a Mizpah Road, Browns Bay, Auckland 1311.
ZL2CLI McArthur, E. J. B. (Dr), PO Box 126, Carterton 5951.
ZL2CM Hastings, F. W., 114 Waterloo Road, Lower Hutt 6009.
ZL2CMG Milne, T. G., Lynwood, Clovelly Road, Hindhead, Surrey GU26 6RP, England.
ZL2CNE Emke, C. N., 12 Lemon Street, Otaki 5560.
ZL2COS Brown, D W, 34a Izard Road, Khandallah, Wellington 6004.
ZL2CPH Details unknown.
ZL2CPR Rood, P. A., 10 Runauga Grove, Waikanae 6010.
ZL2CQ Henderson, J. M., Howie Road, Fern Flats, RD 2, Marton 5460.
ZL2CR Miller, N., 36 Stanley Street, Berhampore, Wellington 6002.
ZL2CT Evans, Brian, South Featherston Road, RD 1, Featherston 5952.
ZL2CTM Morris, C. T., 89 Gate Pa Road, Ohakea 5450.
ZL2CV Fulton, J. M. L., 60 Shelbourne Street, Nelson 7001.
ZL2CVA Adams, A. E., Address unknown.
ZL2CW Gilbert, G. B., 10 Chesterton Street, Johnsonville, Wellington 6004.
ZL2CWA Armstrong, C., Trelawney Crescent, New Plymouth 4601.
ZL2CX Stenning, P. D., PO Box 4, Upper Moutere, Nelson 7001.
ZL2CY Details unknown.
ZL2CZ Clibborn, G. H., 30 Kent Terrace, Taradale, Napier 4001.
ZL2CZM Details unknown.
ZL2DA Appleton, D., 19 Franklin Terrace, Havelock North 4201.
ZL2DAN Leyland, D. J., 24 Seddon Street, Wallaceville, Upper Hutt 6007.
ZL2DAX Mitchell, A. R. G., 39 Birmingham Street, Palmerston North 5301.
ZL2DAY Mott, P. W., PO Box 36-502, Northcote, Auckland 1330.
ZL2DB Brown, A. D., 154 Barnard Street, Wellington 6001.
ZL2DBA Jorgensen, L. H., 291 South Road, RD 4, New Plymouth 4621.
ZL2DBC Child, J., PO Box 82-109, Highland Park, Howick, Auckland 1730.
ZL2DBE Peart, C. J., Burnside Road, Takaka 7172.
ZL2DBO O'Donnell, Jill, 39 Lismore Street, New Plymouth 4601.
ZL2DBT Marsh, H. A., 2/187 Carrington Street, New Plymouth 4601.
ZL2DBX Jago, J. N., 166 Tasman Street, Opunake 4854.
ZL2DC Chisholm, W. P., 1 Camelia Court, Palmerston North 5301.
ZL2DCB Byron, D. C., 14 Woburn Place, Palmerston North 5301.
ZL2DD Scott, D. F., 68 Chatsworth Road, Silverstream 6007.
ZL2DE Johnson, D. H. (Mrs), Address unknown.
ZL2DEX Muir, D. N., 5 Brighton Crescent, Palmerston North 5301.
ZL2DH Welsh, J. W., 35 Beach Road, Richmond 7002.
ZL2DI Shortt, J. H., 80 Savage Crescent, Palmerston North 5301.
ZL2DJ Dickson, Bill, 21 Grenville Street, New Plymouth 4601.
ZL2DJA Anderson, D, Factory Road, RD, Motueka 7160.
ZL2DJC Details withheld by request of callholder.
ZL2DJF Fox, D. J., 112 Ngamotu Road, New Plymouth 4601.
ZL2DK Keenan, D. S. J., 13 Ruru Crescent, Heretaunga Park, Silverstream 6007.
ZL2DLS Details unknown.
ZL2DM Christian, T. C., Address unknown.
ZL2DMC DMC Stratex Network Amateur Radio Club, 24 Bridge Street, Lower Hutt 6008.
ZL2DMG Gentles, D. M. A. (Mrs), 13/70 Kensington Drive, Tardale, Napier 4001.
ZL2DN Lucas, D. C., PO Box 283, Pacific Harbour, Fiji.
ZL2DO McMillan, R. H., 4/39c Marybank Road, Nelson 7001.
ZL2DOW Details unknown.
ZL2DP Purton, S. D., 376 Botanical Road, Palmerston North 5301.
ZL2DR Hearne, Michelle, 56 Abraham Heights, Nelson 7001.
ZL2DS Horowhenua Branch, see Branch Directory.
ZL2DSW Williams, D. S., 156 Main Road, Wainuiomata 6008.
ZL2DT Cordy, J. G. G., 50 Strathmore Avenue, Wellington 6003.
ZL2DU Millane, M. L., 132 Campbell Street, Karori, Wellington 6005.
ZL2DUS Henderson, K. H., 30 Vaucluse Avenue, Paraparaumu 6010.
ZL2DW Walker, D, 36 Ardrossan Avenue, Flaxmere, Hastings 4201.
ZL2DX Hannagan, C. C., Southdown Heights, Fraters Road, RD, Martinborough 5954.
ZL2DY Parsons, A. D., 30 John Street, Upper Hutt 6007.
ZL2DZ Janaszkiewicz, R, 26 Foster Street, Avalon, Lower Hutt 6009.
ZL2DZF Details unknown.
ZL2FA Hogan, A. V., Address unknown.
ZL2FAB Burgess, F. A., 24 Island Road, Gisborne 3801.
ZL2FAR Details unknown.
ZL2FB Matthews-Hunt, R. (Mrs), 9 Arrowfield Drive, Pyes Pa, Tauranga 3001.
ZL2FC Coutts, C. G., 12 Paierau Road, RD 1, Masterton 5921.
ZL2FD Butel, D., 39 Mulberry Street, Lower Hutt 6009.
ZL2FE Falkner, B. A., 49 Karina Terrace, Palmerston North 5301.
ZL2FF Hayward, R. S., 17 York Street, Motueka 7161.
ZL2FG Torrie, A. W., 100 Blue Pacific Parade, Riversdale Beach, Via Masterton 5970.
ZL2FH Garth, P. E., 101 Birrell Street, Gisborne 3801.
ZL2FI Gaunt, P. J., 28 Balliol Drive, Tawa, Wellington 6006.
ZL2FJ Withy, D. G., 16 Kenmore Street, Newlands, Wellington 6004.
ZL2FM Burr, E. J., 87 Stanley Road, Gisborne 3801.
ZL2FN Williams, E. F., 31d Liffiton Street, Wanganui 5001.
ZL2FO Hawtree, Val, 50 Fox Road, Wanganui 5001.
ZL2FOX Claydon, A. C., 9/37 Selwyn Street, Tauranga 3001.
ZL2FP George, S. B., 7 Te Whena Place, Waitara 4656.
ZL2FQ Burgoyne, T. A., 3 Shakespeare Walk, Nelson 7001.
ZL2FR Dyett, N. D., 71 Coutts Street, Wellington 6003.
ZL2FS Priest, J. R., 26 Woolcombe Terrace, New Plymouth 4601.
ZL2FU Hird, E. J., 61 Mantell Street, Seatoun, Wellington 6003.
ZL2FV Richter, B. E., 706d Pioneer Highway, Palmerston North 5301.
ZL2FW Harbridge, L. W., 20 Mascot Street, Tawa 6006.
ZL2FWE Swarbrick, A., 2 Hunter Avenue, Richmond 7002.
ZL2FX Billington, S. G., 28 Herbert Avenue, Palmerston North 5301.
ZL2FY Harkett, R. J., 15b Alfred Street, Palmerston North 5301.
ZL2FZ Reeve, R. P., 5 Eginton Street, Motueka 7161.
ZL2GA Johnson, D. F. T., 7 Pinehaven Road, Upper Hutt 6007.
ZL2GB Little, Allen, 7 Earl Street, Levin 5500.
ZL2GC Ruane, M., 27 Norton Park Avenue, Fairfield, Lower Hutt 6009.
ZL2GD Daniel, A. G., 39 Sunrise Boulevard, Tawa, Wellington 6006.
ZL2GE Evans, G. R., 30 Margaret Road, Raumati Beach 6010.
ZL2GEM Details unknown.
ZL2GEO Girling, G. F., 4 Oldfield Place, Bulls 5452.
ZL2GER Details unknown.
ZL2GG Smith, W. T., 17 Oxford Street, Palmerston North 5301.
ZL2GH Huberts, G. H., 55 Potae Avenue, Gisborne 3801.

ZL2GI Gilbert, Win, 146 Liverton Road, Belmont, Lower Hutt 6009.
ZL2GJ Pearce, R. A. (Bob), 3 Strasbourge Street, Martinborough 5954.
ZL2GK Motueka Branch NZART, see Branch Directory.
ZL2GM Details unknown.
ZL2GMP Pollock, G. M. (Mrs), 24 Jessie Street, Mapua 7155.
ZL2GN Malabar, R. S., 9 Messenger Terrace, Oakura 4650.
ZL2GO Blackley, L. C., 26 Kaitawa Crescent, Paraparaumu 6010.
ZL2GQ Topliss, P. G., 7 Victoria Heights, Nelson 7001.
ZL2GRI Crone, W. G., 298b Kahutia Street, Gisborne 3801.
ZL2GRZ Zambon, G. R., 1a Joseph Grove, Upper Hutt 6007.
ZL2GS Legg, J. B., 46 Grey Street, Feilding 5600.
ZL2GT Napier Amateur Radio Club Inc, see Branch Directory.
ZL2GUS Gusscott, N. T., Studio 217, Shona McFarlane Village, 66 Mabey Road, Avalon, Lower Hutt 6009.
ZL2GV Hutton, J. D., 96 Waikite Road, Welcome Bay, RD 5, Tauranga 3021.
ZL2GVA van Antwerpen, G., 137 Vickerman Street, Grovetown, Blenheim 7321.
ZL2GX Details unknown.
ZL2GY Taillie, L. I., 8 Findlay Street, Mangawhai 0583.
ZL2HA Gentry, L. J. (Mrs), 8 Chudleigh Grove, Churton Park, Wellington 6004.
ZL2HB Stephens, D. A., 2 Riverbend Road, Napier 4001.
ZL2HBC Chandler, H. B., 34 Keith Street, Palmerston North 5301.
ZL2HD Andrews, John, 66 Khandallah Road, Khandallah, Wellington 6004.
ZL2HE Law, A. E., 68 Ruahine Street, Dannevirke 5491.
ZL2HGR Dixon, M T R, 6 Kelly Grove, Upper Hutt 6007.
ZL2HI Hewer, Gloria, 115 Omata Road, New Plymouth 4601.
ZL2HIS Sutherland, N., 36 Paremata Street, Atawhai, Nelson 7001.
ZL2HJ Garrett, W. E., 412 Devon Street East, New Plymouth 4601.
ZL2HK Wakely, J. R., 109 Mt View Road, Wanganui 5001.
ZL2HM Moore, P. R., 99 Randwick Crescent, Moera, Lower Hutt 6009.
ZL2HO Warner, B. A., 23 City View Grove, Harbour View, Lower Hutt 6009.
ZL2HR Beattie, P., 43 Gordon Street, Lower Hutt 6009.
ZL2HRD Details unknown.
ZL2HRL Lightwood, H. R., 137a Hospital Road, Blenheim 7301.
ZL2HS Details unknown.
ZL2HT Hooker, D. D., 1a Reeve Drive, Havelock North 4201.
ZL2HU Holdom, Ken A., PO Box 7, Clyde, Central Otago 9180 zl2hu@clear.net.nz.
ZL2HV Hutt Valley Branch, see Branch Directory.
ZL2HW Marsh, N. O., 16 Harris Street, Waitara 4656.
ZL2HY Devenport, B., 1782 Wharerata Road, RD 2, Gisborne 3821.
ZL2IA Winton, L. J., 47 Richmond Street, Napier 4001.
ZL2IAN Thompson, I., 8 Dampier Avenue, Palmerston North 5301.
ZL2IAS Swain, I. A., 229 Riverside Drive, Waterloo, Lower Hutt 6009.
ZL2IB Tararua District Radio Club, see Branch Directory.
ZL2ICE Details unknown.
ZL2ID Appleton, C., 52b Aquarius Drive, Rotorua 3201.
ZL2IFA Andrews, I. F., 66 Shakespeare Avenue, Upper Hutt 6007.
ZL2IG Tombs, E. P., 5 Nelson Street, Levin 5500.
ZL2IH Hayton, Ian, PO Box 633, New Plymouth 4615.
ZL2IHW White, I. H., 10 Lindaver Grove, New Plymouth 4601.
ZL2II Caldwell, D. G., 88 Jubilee Road, Khandallah, Wellington 6004.
ZL2III Nieberding, F A, 42 Highbury Road, Kelburn, Wellington 6005.
ZL2IJ Eastwood, R. J., 63 Shepherd Road, Taupo 2730.
ZL2IK Mulhare, P. J., 1231 Pipiwai Road, RD 6, Whangarei 0121.
ZL2IM Brown, P. W., 20 Nevada Drive, New Plymouth 4601.
ZL2IMM McLachlan, I. M., 15 Tolerton Avenue, Gisborne 3801.
ZL2IN Crumpton, R. E., 27 Kapiti Crescent, Titahi Bay 6006.
ZL2IO Collins, E. S., Main Road, Wakapuaka, RD 1, Nelson 7021.
ZL2IOX Details unknown.
ZL2IP Barnes, E. J., 790 UppeRDurham Road, RD 8, Inglewood 4651.
ZL2IQ Wills, M. J., PO Box 31-227, Lower Hutt 6315.
ZL2IR Cuttriss, N. A., 2 Meldrum Street, Naenae, Lower Hutt 6009.
ZL2IS Were, G., 180 Regan Street, Stratford 4700.
ZL2IT Lilley, E. C. C., 1b Harvey Road, Napier 4001.
ZL2IV Gorman, D. D., PO Box 1613, Wellington 6015.
ZL2IW Carter, R. S., 269 Ngaio Street, Rarangi, RD 3, Blenheim 7321.
ZL2IX Parker, C. H., 24 Tiraumea Road, Pahiatua 5470.
ZL2IZ Bartleet, J. R., PO Box 2209, Gisborne 3015.
ZL2JA Wanganui Amateur Radio Society (Inc.), see Branch Directory.
ZL2JAD Dunlop, J. A., 105 Kelburn Parade, Kelburn, Wellington 6005.
ZL2JB Rawiti, B. R. M., 1/6 Bloomfield Place, Onerahi, Whangarei 0101.
ZL2JD Duncan, J. R., 7 Crown Hill, Onepoto, Titahi Bay 6006.
ZL2JDM Details unknown.
ZL2JE Morison, R. D., 40 Oregon Drive, Taupo 2730.
ZL2JF Details unknown.
ZL2JG Anderson, G. A., 20 Leybourne Avenue, Waikanae 6010.
ZL2JI Thompson, J. P., 1 Healey Place, Gisborne 3801.
ZL2JJ Byam, S. P., RD 2, Waverley 5182.
ZL2JK Butler, D. B., 195 Sims Road, RD, Te Horo Beach 5560.
ZL2JKS Sorensen, J. K. (Miss), 57 Heta Road, New Plymouth 4601.
ZL2JL Prime, D. R., 57 Waerenga Road, Otaki 5560.
ZL2JN Hodder, A. A., 394 Somme Parade, Wanganui 5001.
ZL2JO Lambert, N. H., 7 Sunbrae Drive, Silverstream 6007.
ZL2JOE Abrahams, J. D., 1 Willis Street, Marton 5460.
ZL2JON Robinson, J., 9 Watson Street, Bulls 5452.
ZL2JOS Details unknown.
ZL2JP Sarten, C. J. (Mrs), 212 Coronation Avenue, New Plymouth 4601.
ZL2JPL Watkins, A. S. R., Address unknown.
ZL2JR Robertson, J., 100 Cluny Road, Plimmerton 6006.
ZL2JS Black, I. W., 46 Harris Street, Marton 5460.
ZL2JSA Slater, D. J., 35 Wyndham Road, Ashhurst 5451.
ZL2JSB Barnes, S., 31 Brooklands Road, Nelson 7001.
ZL2JT Mackie, J. B., 8 Tarata Street, Stoke, Nelson 7001.
ZL2JWS Smith, J. W., 256 Waiwhetu Road, Lower Hutt 6009.
ZL2JX Hodgson, E. R., 20 Colombo Street, Palmerston North 5301.
ZL2JXT Details unknown.
ZL2JY Vincent, G. C., Motuiti Road, RD 11, Foxton 5551.
ZL2JZ Jury, E. G., "Glendower", Ponatahi Road, RD 2, Carterton 5951.
ZL2KA Hearne, W. R., 56 Abraham Heights, Nelson 7001.
ZL2KB Kapiti Branch 69 NZART (Inc.), see Branch Directory.
ZL2KC Details unknown.
ZL2KD Keegan, R. J., 11 Malaghan Grove, Johnsonville, Wellington 6004.
ZL2KE Smith, W. A. D., 343 Devon Street West, New Plymouth 4601.
ZL2KEL Birch, F. K., 1 Hosking Place, Clarks Beach, RD 4, Pukekohe 1800.
ZL2KEN Dewar, D. B., 7 Richardson Avenue, Gisborne 3801.
ZL2KF Fellows, S. K., 15 Fremont Grove, Upper Hutt 6007.
ZL2KH Symon, Roy, 25 Annandale Street, Postal: PO Box 6082, Moturoa, New Plymouth 4630.
ZL2KIA Kirkham, G, 46 Bridge Road Puha, Te Karaka, Gisborne 3871.
ZL2KK Kerr, R. F., 78 Southgate Road, Southgate, Wellington 6002.
ZL2KN Trainor, A. P. T., 118 Dimock Street, Titahi Bay, Wellington 6006.
ZL2KO Manawatu Amateur Radio Society, see Branch Directory.
ZL2KOT Details unknown.
ZL2KP Prior, R. T., 14 Mana Esplanade, Mana 6006.
ZL2KQ Larsen, K., RD 44, Urenui 4655.
ZL2KS Marlborough Amateur Radio Club, see Branch Directory.
ZL2KT Brooker, R. G., Ikanui Road, Hastings 4201.
ZL2KV Martin, C. J. T., 1778 Mountain Road, RD 10, Inglewood 4651.
ZL2KW Betteridge, O., 8 Chambers Street, Napier 4001.
ZL2KWI Manze, J. A., 10/4 Derby Street, Mt Victoria, Wellington 6001.
ZL2KZ Kingston, G., 53 Tannadyce Street, Wellington 6003.
ZL2LA Vivian, B., 399 Mangorei Road, New Plymouth 4601.
ZL2LAB Vidulich, M. J., 219 Auckland Road, Mission View, Napier 4001.
ZL2LB Milner, M. O., 21 Rangatira Road, Tawa, Wellington 6006.
ZL2LC Chapman, M. A., 38 Fairview Road, Katikati 3063.
ZL2LD Munn, P. M., PO Box 446, Masterton 5915.
ZL2LDX Lauder, C. D., 118 Gemstone Drive, Parkdale, Upper Hutt 6007.
ZL2LE White, Lee, 502 Huia Street, Hastings 4201.
ZL2LEW Details unknown.
ZL2LF Dingley, P. D., PO Box 4191, Marewa, Napier 4030.
ZL2LG Dunning, S. P., 17 Kanpur Road, Wellington 6004.
ZL2LJ O'Grady, P. L., 8 Cambridge Street, Tawa 6006.
ZL2LK Taylor, T. J. A., 37 Riversdale Drive, New Plymouth 4601.
ZL2LKS Shotton, L. K., 58a Geraldine Crescent, Palmerston North 5301.
ZL2LL Sutherland, C. I., 28 Venice Street, Martinborough 5954.
ZL2LM Merrick, L. F., 22 Bledisloe Avenue, Nelson 7001.
ZL2LML Lovatt, L. M., 4 Awanui Street, New Plymouth 4601.
ZL2LN Davenport, N. B., Richmond Road, Pohara, RD 1, Takaka 7172.
ZL2LO Kerr, C. M., 30 Wakefield Street, Wanganui 5001.
ZL2LQ Coote, D., 19 Corlett Road, Plimmerton 6006.
ZL2LR Reid, Les, 19a Roslyn Road, Napier 4001.
ZL2LUK Wilton, L. J., 88 Cornwall Street, Masterton 5901.
ZL2LV Ryan, J. F., 44 Sylvan Avenue, Waikanae 6010.
ZL2LW Wright, L. J., 14 Tennyson Street, Upper Hutt 6007.
ZL2LX Motion, R., 2a Hazel Terrace, Cherrywood, Tauranga 3001.
ZL2LZ Rumsey, J. R., 51 Freyberg Street, Lyall Bay, Wellington 6003.
ZL2MAC McCulloch, G. L. (Mac), Koromiko, RD 3, Blenheim 7321.
ZL2MAX Wheatley, M. J., 150 Wyndham Street, Ashhurst 5451.
ZL2MB Montgomerie, J. C., 11 Gardiner Place, Havelock North 4201.
ZL2MBE Details unknown.

ZL2MBF Francis, B., 31 Clemow Road, New Plymouth 4601.
ZL2MBS Burrell-Smith, M. L. C., 5 Kinlock Crescent, Blenheim 7301.
ZL2MC Cook, M. J., 58 Hewitts Road, Woodend, North Canterbury 8255.
ZL2MD Mills, C. W., 43 Great North Road, Wanganui 5001.
ZL2ME Sarten, D. M., 212 Coronation Avenue, New Plymouth 4601.
ZL2MF Details unknown.
ZL2MG Waimarino Branch NZART Inc., see Branch Directory.
ZL2MGA Details unknown.
ZL2MH Neal, E. W., 2a Trinity Place, Paraparaumu Beach, Paraparaumu 6010.
ZL2MHB MED Listed Beacon.
ZL2MHC Cairns, M. H., 4 Terrace Street, Aramoho, Wanganui 5001.
ZL2MHF MED Listed Beacon.
ZL2MI McCulloch, J. G., 81 Kemp Street, Kilbirnie, Wellington 6003.
ZL2MIC Campkin, M. I., 25 Paritutu Road, Spotswood, New Plymouth 4601.
ZL2MJ Perry, F. G., PO Box 124, Otaki 5560.
ZL2ML Castles, C. R. M., 2 Kauri Street, Gisborne 3801.
ZL2MLS Savage, M. L., 22 Firth Terrace, Karori, Wellington 6005.
ZL2MMO Prentice, S. D., Address unknown.
ZL2MN Meyer, L. H., 23 Canterbury Street, Tamatea, Napier 4001.
ZL2MO Brown, N. L., 72 Kapanui Road, Waikanae 6010.
ZL2MOT Moorcroft, T. K., 14 Pine Street, Gisborne 3801.
ZL2MP Colley, M. J., 23 Churchill Avenue, Richmond, Nelson 7002.
ZL2MPW Details unknown.
ZL2MQ Crook, D. J., 9 Roslyn Road, Napier 4001.
ZL2MR Ryan, M. D., 147 Mahurangi East Road, Snells Beach, Warkworth 1241.
ZL2MRE Potts, M. R. E., 4 Waiwera Place, New Plymouth 4601.
ZL2MT Railton, G. H., 15 Chudleigh Grove, Churton Park, Wellington 6004.
ZL2MTH Hodgkinson, M. T., 19 Thirlmere Street, Wainuiomata 6008.
ZL2MU Jupp, A. L., 147 Raleigh Street, RD 42, Waitara 4656.
ZL2MUF Pawson, S. R., 239 High Street, Solway, Masterton 5901.
ZL2MUI Badrick, R., 3 Sorrento Road, Silverstream, Upper Hutt 6007.
ZL2MW Details unknown.
ZL2MX Lawn, M. E. (Mrs), 60b Govett Avenue, New Plymouth 4601.
ZL2MZ Pool, B. L., 9 Rembrandt Avenue, Linden 6006.
ZL2MZM Details unknown.
ZL2NAI Details unknown.
ZL2NAX Love, J. E., 20 Bombay Street, Aramoho, Wanganui 5001.
ZL2NB Barlow, F. E., 15 Sutherland Crescent, Melrose, Wellington 6003.
ZL2NBJ Brown, J. R., 42 Owen Street, Newtown, Wellington 6002.
ZL2NBP Rennie, P. W. G., 64 Park Terrace, Blenheim 7301.
ZL2NBR Jamieson, A. D., 2 Waipuna Street, Blenheim 7301.
ZL2NEK Dewar, K. D., 7 Richardson Avenue, Gisborne 3801.
ZL2NF Frazer, G. C., 14 Hinton Road, Taradale, Napier 4001.
ZL2NG Aked, M. S., 328 Rosetta Road, Raumati 6010.
ZL2NH Bayly, R. B., 91 Lytton Road, Gisborne 3801.
ZL2NI Dumbleton, G. W., 4 Stormont Place, Kingston, Wellington 6002.
ZL2NJ Tarrant, P. E., PO Box 55, Wanganui 5015.
ZL2NM Stewart, H. A. S., 41 Tautahanga Road, Turangi 2751.
ZL2NN Pye, Jamie, 63 Thackeray Street, Upper Hutt 6007.
ZL2NO Grace, K. E., 9 Te Ara Road, Pukerua Bay 6010.
ZL2NOR Antill, R K, 50 Rosendale Avenue, New Plymouth 4601.
ZL2NP Smith, F. J. A., 21 Otatara Road, Taradale, Napier 4001.
ZL2NQ Evaroa, D. T., Appleby Road, RD 1, Drury, Auckland 1750.
ZL2NR Rubery, T. F., 3 McDonald Place, Marton 5460.
ZL2NS Douche, W. P., 142 Main Road, Waikanae 6010.
ZL2NUT Davoren, Margaret, PO Box 275, Gisborne 3815.
ZL2NV Johnston, A. F., 21 Brooklands Road, Atawhai, Nelson 7001.
ZL2NW Swarbrick, W. (Mrs), 2 Hunter Avenue, Richmond 7002.
ZL2NX Kiwi Contest Group, C/- T. J. Hogan, 19 Ruskin Road, Newlands, Wellington 6004.
ZL2NZ Milner, G. L. (Mrs), 21 Rangatira Road, Tawa, Wellington 6006.
ZL2OA Wairarapa Amateur Radio Club (Inc.), see Branch Directory.
ZL2OAK Details unknown.
ZL2OB O'Brien, Des, 133 Makino Road, Fielding 5600.
ZL2OE Logan, D. J., 270 Manly Street, Paraparaumu Beach, Paraparaumu 6010.
ZL2OF Pentelow, L. C., Kina Road, RD 31, Opunake 4854.
ZL2OG Chisnall, R. R., 71 Lakings Road, Blenheim 7301.
ZL2OH McMillan, W. I., 67 Bluegum Road, Paraparaumu Beach 6010.
ZL2OJ Sainsbury, R. P., 34 York Street, Masterton 5901.
ZL2OK Dickson, A. J., 193 Park Road, Palmerston North 5301.
ZL2OL Sigglekow, R. W., 9 Raukawa Street, Stokes Valley 6008.
ZL2OM Manning, S. C., 87a Waimea Street, New Plymouth 4601.
ZL2OOO Details unknown.
ZL2OR Osborne, D. O., 9 Greenock Place, Palmerston North 5301.
ZL2ORA Kirkham, D, 46 Bridge Road Puha, Te Karaka, Gisborne 3871.
ZL2OV Lee, W. C., 11 Henderson Street, Karori, Wellington 6005.
ZL2OY Blackwood, R. L., 245 Main Road, Tawa, Wellington 6006.
ZL2OZ Jacobsen, W. J., 10 Empire Street, Dannevirke 5491.
ZL2PA Details unknown.
ZL2PB McLaren, H. B., 10 Towai Street, Stoke, Nelson 7001.
ZL2PC Details unknown.
ZL2PCG Goulter, P. C., 8 Murphys Road, Blenheim 7301.
ZL2PD Woodfield, A. O. J., 24 Beverley Street, St Albans, Christchurch 8001.
ZL2PE Details unknown.
ZL2PET Petri, A., 1a Dampier Avenue, Palmerston North 5301.
ZL2PF Farrell, P J, 30 Coverdale Street, Onekawa, Napier 4001.
ZL2PG Laird, A. K., 24 Patrick Street, Petone 6008.
ZL2PGJ Details withheld by request of callholder.
ZL2PI Treleaven, A. R., 18 Trafalgar Street, New Plymouth 4601.
ZL2PJ Spellman, P. J., 36 Record Street, Fitzroy, New Plymouth 4601.
ZL2PKJ Johnston, P. K., 33 Mowat Street, Blenheim 7301.
ZL2PL Young, C. T., 3a Princeton Road, Raumati Beach 6010.
ZL2PM Coneybeer, G. B., PO Box 202, Wanganui 5015.
ZL2POS Purcell, C. R., PO Box 31-312, Lower Hutt 6315.
ZL2PP Jack, P. F. (Mrs), 9 Hillside Courts, 50 Waikawa Road, Picton 7372.
ZL2PQ Sayer, Lynn, 49b Peach Road, Glenfield, Auckland 1310.
ZL2PR Speedy, Sue, "Woodbank", Private Bag 8081, Dannevirke 5491.
ZL2PU Pye, J. T., PO Box 2088, Chermside Centre, QLD 4032, Australia.
ZL2PV Molony, M., 66 Longfellow Street, Upper Hutt 6007.
ZL2PX Taylor, M. F. W., 16 Invergarry Road, Taupo 2730.
ZL2PY Heslop, H. G., 1/57 Grove Street, Nelson 7001.
ZL2QA Kermeen, L. V., 8 Pony Lane, Spreydon, Christchurch 8002.
ZL2QB Wenzel, K. D., RD 1, Upper Moutere 7152.
ZL2QE Details unknown.
ZL2QF Patea Branch NZART (Inc.), see Branch Directory.
ZL2QG Brunton, W. R., 98 Hospital Road, Blenheim 7301.
ZL2QK Kenny, E. J., 5 Townley Street, Te Hapara, Gisborne 3801.
ZL2QM Burry, J. P. P., 908 Caroline Road, Hastings 4201.
ZL2QN Burrell, G. A., 20a Tawa Terrace, Tawa 6006.
ZL2QP Smith, Q. P. J., 41 Blue Gum Place, North New Brighton, Christchurch 8009.
ZL2QQ Details unknown.
ZL2QR Abel, A. J., 20 Ranfurly Road, Feilding 5600.
ZL2QX Robinson, D. M., PO Box 6147, Whakarewarewa, Rotorua 3230.
ZL2QY Neilson, Pearl, C/- Atmore House, 20 Atmore Avenue, Otaki 5560.
ZL2QZ Wright, B. E., PO Box 43-100, Wainuiomata 6340.
ZL2RAE Details unknown.
ZL2RB Thompson, C. I. N., PO Box 534, Kaitaia 0500.
ZL2RD Wills, R. E., 30 City View Grove, Lower Hutt 6009.
ZL2RDH Harwood, R. D., 187 Matai Road, Raumati Beach 6010.
ZL2RDM Murray, R. D., 21 Derby Street, Masterton 5901.
ZL2RF Fletcher, A. E., 480 Fergusson Drive, Upper Hutt 6007.
ZL2RG Nixon, P. A., 194 Frankley Road, New Plymouth 4601.
ZL2RH Highman, R. E., 3 Rushbury Place, Manurewa, Auckland 1702.
ZL2RI Main, S. G., 24 Kingsley Street, Gisborne 3801.
ZL2RIC Coleman, Ric, 12 Grundy Street, Gisborne 3801.
ZL2RJ Hopgood, D. J., 33 Truscott Avenue, Johnsonville, Wellington 6004.
ZL2RJF Fleming, R. J. R., RD 11, Foxton 5551.
ZL2RK Details unknown.
ZL2RL Berg, B. L., 8 Waikare Avenue, Lower Hutt 6009.
ZL2RM Collecutt, G. P., PO Box 226, Russell 0255.
ZL2RMS Details unknown.
ZL2RN Royal Naval Amateur Radio Society (NZ Branch), (Trustee: ZL2TX), 20 Greenwood Boulevard, RD 1, Otaki 5560.
ZL2RO Thomas, L. R., 102 Emano Street, Nelson 7001.
ZL2RON Dannatt, R., 69 Beazley Crescent, Whangarei 0101.
ZL2ROO Oosterling, R, 37 Humphries Street, RD 1, Greytown 5953.
ZL2ROS Holdaway, R. J., 21 Richardson Avenue, Blenheim 7301.
ZL2ROY Sefton, R. C., 45 Newcastle Street, Palmerston North 5301.
ZL2RPD Details unknown.
ZL2RQ Details unknown.
ZL2RR Stewart, B. E., 1 Caversham Road, Mosston, Wanganui 5001.
ZL2RS Royal Signals Amateur Radio Society, (NZ Chapter Trustee ZL4VV), 399b Te Moana Road, Waikanae 6010.
ZL2RT Jackson, H. R., Takarei Terrace, Mokau 4650.
ZL2RU Rowe, I. S., 88 Washington Avenue, Brooklyn, Wellington 6002.
ZL2RW White, R. S., Flat 4/305 Fergusson Street, Palmerston North 5301.
ZL2RWE Details unknown.
ZL2RX Wincer, R. A., 302 Atawhai Drive, Nelson 7001.
ZL2RY Smith, S. J., 414 Ormond Road, Gisborne 3801.
ZL2RZ Wall, A. M., Homewood Road, RD 12, Masterton 5921.
ZL2SAM Ashton, S. J., 20 Fitzherbert Street, Wainuiomata 6008.
ZL2SAW Details unknown.
ZL2SB Petherick, E. R., 23 Anaru Street, Raumati Beach 6010.
ZL2SD White, R. L., 74 Norbiton Road, Foxton 5551.
ZL2SET Details unknown.

ZL2SF Lewis, A. W., 18 Finlay Terrace, PO Box 10-114, The Terrace, Wellington 6036.
ZL2SG Wallace, Robert, 1016 Southland Road, Hastings 4201.
ZL2SGT Kato, N., 17 Hunter Street, Palmerston North 5301.
ZL2SIX MED Listed Beacon.
ZL2SJ Norden, A. P., 38 Bell Street, Featherston 5952.
ZL2SK Adamson, D. P., Old Kipps Road, RD 10, Palmerston North 5321.
ZL2SKB Bonnington, S. K. (Miss), 170 Bridge Street, Bulls 5452.
ZL2SKY Chandler, A. J., 4 Tyne Street, Palmerston North 5301.
ZL2SM Smart, L. E., 48 Leslie Street, Waitara 4656.
ZL2SN Black, R. B., PO Box 2222, Stortford Lodge, Hastings 4230.
ZL2SQ McQuillan, H., Zagros Orchard, RD 1, Upper Moutere 7152.
ZL2SR Carran, Stephen, 263 Grahams Road, Christchurch 8005.
ZL2SS Wallace, G. J., C/- 14 William Street, Lincoln 8152.
ZL2ST White, S. J., 54a Auckland Road, Greenmeadows, Napier 4001.
ZL2SU Harris, J. R., 21 Kokiri Crescent, Porirua, Wellington 6006.
ZL2SW Details unknown.
ZL2SWR South Wairarapa Amateur Radio Club, see Branch Directory.
ZL2SWZ Details unknown.
ZL2SX Andrews, David, 66 Khandallah Road, Wellington 6004.
ZL2SZ Pye, Gael, 63 Thackeray Street, Upper Hutt 6007.
ZL2TA McNearnie, K. B., 8 Dunk Place, Palmerston North 5301.
ZL2TAB Hinton-Cooper, K. E., Address unknown.
ZL2TAD Details unknown.
ZL2TAE Saywell, I. C., RD 3, Western Lake, Featherston 5952.
ZL2TAF Cookson, F. J., 25 Maymorn Road, Te Marua 6007.
ZL2TAG Bennett, A. J., 9 Jasper Avenue, Mt Roskill, Auckland 1004.
ZL2TAH Details unknown.
ZL2TAJ Squires, D. R., 6 Waipounamu Drive, Lower Hutt 6009.
ZL2TAK Ingham, C. G., 138 Dowse Drive, Maungaraki, Lower Hutt 6008.
ZL2TAL Gyde, R. V., 148a Pioneer Road, New Plymouth 4601.
ZL2TAM Lam, J. C. S., 16 Mills Street, Eltham 4657.
ZL2TAN Fairbairn, R., 49 Salisbury Road, Richmond, Nelson 7002.
ZL2TAO Johnson, T. A. D., 46 Pope Street, Camborne, Plimmerton 6006.
ZL2TAP Baker, R W E, 6 Nathan Street, Linden, Tawa 6006.
ZL2TAR Ingham, J. D., 138 Dowse Drive, Maungaraki, Lower Hutt 6008.
ZL2TAS Marsh, J. K., PO Box 26, Oakura 4650.
ZL2TAU Wilson, S. J., 12 Atua Street, Johnsonville, Wellington 6004.
ZL2TAW Russ, D., 153 Cracroft Street, Waitara 4656.
ZL2TAY Crook, R. J., 72 Fraser Avenue, Johnsonville, Wellington 6004.
ZL2TB Linney, E., 6 Bailey Grove, Trentham, Upper Hutt 6007.
ZL2TBC Neill, S. G., 6a Burleigh Road, Blenheim 7301.
ZL2TBE Simpson, K. W., 3 Milton Street, Murchison 7191.
ZL2TBF Fennessy, B. G. K., 108 Norton Road, Hastings 4201.
ZL2TBG Snelson, K. H., 26 The Anchorage, Whitby 6006.
ZL2TBH Henderson, G. J., 30 Wisteria Grove, Lower Hutt 6009.
ZL2TBI Simpson, N. M., 3 Milton Street, Murchison 7191.
ZL2TBK Love, G. A., 10 Silverstream Road, Crofton Downs, Wellington 6004.
ZL2TBM Miles, B. (Mrs), 25 Fox Street, Featherston 5952.
ZL2TBN Nelson, B E, 14 Cranbrook Grove, Waikanae 6010.
ZL2TBP Norgrove, A. E., 90 South Karori Road, Karori, Wellington 6005.
ZL2TBS Ward, L. A., 11 Pinny Avenue, Lower Hutt 6009.
ZL2TBU Stevens, J. E. R., 48 Chesterton Street, Johnsonville, Wellington 6004.
ZL2TBW Details unknown.
ZL2TBX Carson, M. R., 36a Niblett Street, Wanganui 5001.
ZL2TBZ Milsom, M. A., 1d Brora Crescent, Papakowhai, Porirua 6006.
ZL2TCA Poulsen, J. M., 36 Marlborough Street, Feilding 5600.
ZL2TCC Brown, G. R., 28 John Street, Stokes Valley 6008.
ZL2TCD Phillips, A. R. J., 7 Macey Crescent, Blenheim 7301.
ZL2TCG Stipkovits, S. P., 76 View Road, Houghton Bay, Wellington 6003.
ZL2TCH Herd, Chris, 17 Haunui Road, Pukerua bay 6010.
ZL2TCJ Preston, R. T., Address unknown.
ZL2TCL Lacey, J. D., PO Box 30-828, Lower Hutt 6315.
ZL2TCM Downs, F. W. P., 58a Chatsworth Road, Silverstream, Upper Hutt 6007.
ZL2TCN Barnhill, J. D., 26 Garfield Street, Brooklyn, Wellington 6002.
ZL2TCR Draffin, Caleb, Private Bag 7517, Gisborne 3820.
ZL2TCU Milne, R. J., 16 Purser Grove, Lower Hutt 6009.
ZL2TCV Bennett, M. A., 95 Karaka Street, Wanganui 5001.
ZL2TCW Bonner, Craig, Peat Avenue, RD 4, Wanganui 5021.
ZL2TCX Ireland, K. J., 14 Martin Harvey Street, Levin 5500.
ZL2TD Preston, P. J., 201 Cecil Road, Wadestown, Wellington 6005.
ZL2TDA Dawson, D. J., 4 Cohen Place, Milson, Palmerston North 5301.
ZL2TDB Bishop, D. J., Address unknown.
ZL2TDC De Grey, S. J., 9 McGuire Street, Hawera 4800.
ZL2TDD Clarke, T. R., 192 Helston Road, Paparangi, Wellington 6004.
ZL2TDF Dicker, J. L., Waimea West, RD 1, Brightwater 7151.
ZL2TDI Doney, P. A., 51c Paterson Street, Aramoho, Wanganui 5001.
ZL2TDJ Boyd, Darrell, 5a Cambridge Street, Wanganui 5001.
ZL2TDK Donald, J, 11 Oaklands Grove, Upper Hutt 6007.
ZL2TDM Morgan, D P, 1252 Fergusson Drive, Maoribank, Upper Hutt 6007.
ZL2TDN Therkleson, G. L., 25 Marine Parade, Sorrento Bay, Eastbourne, Wellington 6008.
ZL2TDO Hyde, P. R., 26 Randwick Crescent, Moera, Lower Hutt 6009.
ZL2TDR Gilgrist, H. T., 183 Te Moana Road, Waikanae 6010.
ZL2TDS Boyd, C. B., 110 Linton Street, Palmerston North 5301.
ZL2TDV Grover, D., PO Box 26-044, Newlands, Wellington 6030.
ZL2TDX Simmons, P. R., Address unknown.
ZL2TE Ireson, S., 57b Sunnyvale Street, Bell Block, New Plymouth 4601.
ZL2TED Colgan, Ted, 55 Hyde Street, Wainuiomata 6008.
ZL2TEG Griffin, E. A., 1010 Mona Street, Hastings 4201.
ZL2TEL Loeffellechner, Erwin, 6 Cunliffe Street, Johnsonville, Wellington 6004.
ZL2TER Details unknown.
ZL2TF Fleming, T. A., 1 Matai Place, Pahiatua 5470.
ZL2TFA Pallesen, E., 4 Burke Grove, Naenae, Lower Hutt 6009.
ZL2TFB Cox, R. J. C., Address unknown.
ZL2TFC Carruthers, B. M., AG Tronics, Private Bag, New Plymouth 4620.
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ZL2TFI Pickett, B. M., 5b Kilsythe Place, Bishopdale, Christchurch 8005.
ZL2TFO Brown, E. J., Address unknown.
ZL2TFR Ramsay, C. G. F. (Ms), 62 Kaikoura Street, Maupuia, Wellington 6003.
ZL2TFS Sears, M. E. (Mrs), 31 Ferry Road, Spring Creek, Marlborough 7350.
ZL2TFT Stohr, F. A., 36a Pretoria Street, Lower Hutt 6009.
ZL2TFX Fox, G. J., 18 Robert Street, Newlands, Wellington 6004.
ZL2TFY Candy, D. O., Rauma Road, RD 3, Taihape 5457.
ZL2TFZ Sayer, J. B., PO Box 30-159, Lower Hutt 6315.
ZL2TGA Details unknown.
ZL2TGB Brabant, G., 7 Konini Street, Inglewood 4651.
ZL2TGC Cooke, G. J., 14 Sylvan Avenue, Waikanae 6010.
ZL2TGD Dempsey, G., 423 Collinge Road, Hastings 4201.
ZL2TGE Campbell, Q. D., 22 Hall Crescent, Taumarunui 2600.
ZL2TGF Moore, T. E., 24 Normanby Street, Newtown, Wellington 6002.
ZL2TGH Miller, G. A., 49 Te Awa Lane, RD 3, Hamilton 2021.
ZL2TGK Jones, G. W., 10 John Guthrie Place, New Plymouth 4601.
ZL2TGM Meads, G. T., 12 Totara Terrace, Inglewood 4651.
ZL2TGN Berry, R. M., 27 Hikanui Drive, Havelock North 4201.
ZL2TGQ Greenbank, R. J., 31 Somes Crescent, Newlands, Wellington 6004.
ZL2TGS Leckie, G. F., 31 Tarapunga Place, Tokoroa 2392.
ZL2TGU Leyton, Geoff, 54a Nicholson Road, Khandallah, Wellington 6004.
ZL2TGX Morrison, J. F., 27 Mulgrave Street, Ashhurst 5451.
ZL2THD Riggs, P. T., 3 Epping Grove, Karori, Wellington 6005.
ZL2THE Morgan, Marie, 19 Hall Crescent, Epuni, Lower Hutt 6009.
ZL2THG Mackie, A. J., 8 Tarata Street, Stoke, Nelson 7001.
ZL2THI Marshall, D. W., PO Box 100, Patea 5181.
ZL2THJ Gill, T. B., 69 Cambria Street, Nelson 7001.
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ZL2TIL Maxwell, D. M., 7 Plunket Avenue, Petone 6008.
ZL2TIQ Brieseman, P. J., 12 Franklyn Road, Tawa 6006.
ZL2TIS Stewart, I., 5 Pownell Street, Masterton 5901.
ZL2TIT Taylor, A. F., 16 Washington Terrace, Nelson 7001.
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ZL2UMB Details unknown.
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ZL2UMJ Robinson, S. T., 37 Beachville Crescent, Nelson 7001.
ZL2UMN Mantell, R. A. (Mrs), 163a Broderick Road, Johnsonville, Wellington 6004.
ZL2UNB Details unknown.
ZL2UNH Details unknown.
ZL2UNS Details unknown.
ZL2UNW Roberts, B. G., 4 Glenamoy Crescent, Johnsonville, Wellington 6004.
ZL2UNX Boniface, N. J., 163 Colombo Road, Masterton 5901.
ZL2UO Terezow, T., 25 Magnolia Grove, Maungaraki, Lower Hutt 6008.
ZL2UOL Levick, A. H., 17 Mascot Street, Tawa, Wellington 6006.
ZL2UPB Brooks, P M, 33 Hotham Street, Murchison 7191.
ZL2UPF Francis, S. P., 57 Heta Road, New Plymouth 4601.
ZL2UPH Herd, Patrick, 17 Haunui Road, Pukerua Bay 6010.
ZL2UPP Details unknown.
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ZL2UQI Coombe, H. W., 31 Linklater Avenue, Foxton Beach 5551.
ZL2UQU Hernandez, M., 10a Duncan Street, Tawa, Wellington 6006.
ZL2UR Lockie, H. A., 70 Cashmere Avenue, Wellington 6004.
ZL2URJ Details unknown.
ZL2URN Christensen, J. H., Fernhill, Mt Bruce, RD 1, Masterton 5921.
ZL2US Benis, H. G., 165 Rosetta Road, Raumati Beach 6010.
ZL2USC Details unknown.
ZL2USG Details unknown.
ZL2USM Fox, A. C. K., 37 St Johns Terrace, Tawa, Wellington 6006.
ZL2USS Holden, G. D., 34 Middleton Road, Johnsonville, Wellington 6004.
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ZL2UTG Hill, A. N., 445 Ruahine Street, Palmerston North 5301.
ZL2UTI Murphy, M. P., 34 Nelson Street, Waipukurau 4176.
ZL2UTN Stewart, J. E., 11a Hartford Crescent, Totara Park, Upper Hutt 6007.
ZL2UTR Francis, A. (Mrs), 31 Clemow Road, Fitzroy, New Plymouth 4601.
ZL2UTU Te Rito, Morgan, 7 Porter Street, Gisborne 3801.
ZL2UTV Ayers, D., PO Box 1756, Shortland Street, Auckland 1015.
ZL2UTX Dines, J, 11 Icarus Place, Rotorua 3201.
ZL2UU Tolley, H. G. R., 28a Essex Street, Masterton 5901.
ZL2UW Naulls, R. D., 119 Arthur Crescent, Taupo 2730.
ZL2UWY Laybourn, R. A., 146 Pembroke Road, Northland, Wellington 6005.
ZL2UX MacDonald, J. R., 39 Aniseed Grove, Upper Hutt 6007.
ZL2UXP Details unknown.
ZL2UZG Wood, L. R. L., 118 Browne Street, Waitara 4656.
ZL2UZP Details unknown.
ZL2UZQ Allen, A. J., 8 Shaftesbury Grove, Stokes Valley 6008.
ZL2VAF Newson, J. R., 807a Gordon Road, Hastings 4201.
ZL2VAH White, G., 807 Kowhai Street, Hastings 4201.
ZL2VAL Leech, A., 1/50 Queens Road, New Plymouth 4601.
ZL2VAR Anderson, G. A., 30 Titoki Street, Masterton 5901.
ZL2VAU Hellberg, D. J., 96 Kelvin Grove Road, Palmerston North 5301.
ZL2VAV Hawtree, N. R., 50 Fox Road, Wanganui 5001.
ZL2VAX Fleming, P. A., Riverland Farm, RD 2, Pahiatua 5470.
ZL2VB Browne, A. H., 98 Renown Road, Raumati South 6010.
ZL2VBH Details unknown.
ZL2VBI Allan, G. (Mrs), 20a Courtney Street, Motueka 7161.
ZL2VBJ Bromley, J H, 9 Archer Place, Carters Beach, Westport 7621.
ZL2VBO Goodger, G. W., 5 Dodson Road, Takaka 7172.
ZL2VBV van Beek, Guy, 16 Norwich Place, Palmerston North 5301.
ZL2VC Johnson, C., 2/3 Tarbet Place, Flaxmere, Hastings 4201.
ZL2VCC Wheatley, Cheryl, 150 Wyndham Street, Ashhurst 5451.
ZL2VCH Herbert, C. A. (Mrs), 60 Karina Road, New Plymouth 4601.
ZL2VCM Details unknown.
ZL2VDB Bolt, D. R., 29 Stillwater Place, Palmerston North 5301.
ZL2VE Hansen, G. H., 9 Sanders Avenue, Napier 4001.
ZL2VEW Details unknown.
ZL2VFR Percival, Percy, Private Box 2565, Wellington 6020.
ZL2VFS Smith, F., 3 Wilson Street, Pahiatua 5470.
ZL2VG Price, D. A. (Tony), PO Box 90-901, Auckland Mail Centre, Auckland 1030.
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ZL2VGH Hardgood, G C, 59 Stewart Drive, Newlands, Wellington 6004.
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ZL2VH Upper Hutt Branch NZART (Inc.), see Branch Directory.
ZL2VHF Details unknown.
ZL2VHT MED Listed Beacon.
ZL2VI Manning, E. E., 33 Tiverton Crescent, New Plymouth 4601.
ZL2VJ Jones, Vivienne, 10 John Guthrie Place, New Plymouth 4601.
ZL2VJB Gosnell, J. B., 10 Eton Place, Palmerston North 5301.
ZL2VJR Rhodes, J. M., 54 Kempton Street, Greytown 5953.
ZL2VJS Sefton, J. (Mrs), 45 Newcastle Street, Palmerston North 5301.
ZL2VJW Wallace, J. J., 18 Cobden Road, Napier 4001.
ZL2VK Wallace, I. R., 22 Parsons Street, Wanganui 5001.
ZL2VKD Allen, J. G., 95 Manuka Street, Wanganui 5001.
ZL2VKE Pomana, S. M., PO Box 80, Pongaroa 5470.
ZL2VL Gloag, G. F., 16a Kimbolton Road, Feilding 5600.
ZL2VLB Bennett, Lance, 31 Miro Street, Inglewood 4651.
ZL2VM Bull, M. B., 51 Liverpool Crescent, Napier 4001.
ZL2VMB McNabb, B. V., 2 Karo Place, Motueka 7161.
ZL2VMH Hoult, M. R., 4 Bancroft Terrace, Newlands, Wellington 6004.
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ZL2VN Gaudin, W. G., 18 Trafalgar Street, New Plymouth 4601.
ZL2VNA Details unknown.
ZL2VO Hayman, G. C., PO Box 157, Masterton 5901.
ZL2VOC Rackstraw, A G, 2 Argyle Grove, Upper Hutt 6007.
ZL2VOX Details unknown.
ZL2VP Cheshire, A. H., 5 Seddon Street, Upper Hutt 6007.
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ZL2VRC Details unknown.
ZL2VRX Details unknown.
ZL2VS Miller, Dusty, 41 Alexandra Street, Marton 5460.
ZL2VSG Gaudin, S. L., 18 Trafalgar Street, New Plymouth 4601.
ZL2VSL Lawn, S. A., 36 Roots Street, Feilding 5600.
ZL2VSM McAnulty, S. M., 35 Daniell Street, Masterton 5901.
ZL2VSP Prakash, S., 23 Tamahine Street, Miramar, Wellington 6003.
ZL2VSS Details unknown.
ZL2VTH Details unknown.
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ZL2VVM Monk, V. B., Kapua Farm, RD 1, Featherston 5952.
ZL2VW Gray, O. T., 16 Gonville Avenue, Wanganui 5001.
ZL2WA Wellington VHF Group, see Branch Directory.
ZL2WAG Ragan, G. S., 32 Mitchell Street, Wanganui 5001.
ZL2WAJ Details unknown.
ZL2WAK Details unknown.
ZL2WAL Wallace, R. G., 28 Hereford Street, Wilton, Wellington 6005.
ZL2WAS Kirk, G. A., 92 Somerset Road, Wanganui 5001.
ZL2WAT Details unknown.
ZL2WAU Cooper, S. R., Rosewood Villa, 24 York Street, Dannevirke 5491.
ZL2WAV James, A N, 24 Hampden Street, Murchison 7191.
ZL2WAX Campbell, W. M., C/- P. Penberthy, RD 5, Rangitiki Lane, Palmerston North 5321.
ZL2WAZ Watkins, A. L., 46 Strand Crescent, Lower Hutt 6009.
ZL2WB Wellington Amateur Radio Club (Inc.), see Branch Directory.
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ZL2WBS Details unknown.
ZL2WCG Gubbins, C. P., 3 Sackville Street, Grey Lynn, Auckland 1002.
ZL2WCT Details unknown.
ZL2WDB Details unknown.
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ZL2WEL Details unknown.
ZL2WEM Details unknown.
ZL2WF Wensley, N. L., 29 Cawthron Crescent, Nelson 7001.
ZL2WI Wilkinson, J. G., 70 Queens Road, Waikanae Beach 6010.
ZL2WIT Johnston, M. D., Address unknown.
ZL2WIZ Details unknown.
ZL2WJ Ross, J. B., 16 Moncrieff Avenue, Tahunanui, Nelson 7001.
ZL2WJA Details unknown.
ZL2WJM Mulholland, M. J., 251 Princes Street, Hawera 4800.
ZL2WJO O'Sullivan, J P, 1 Cooper Place, Richmond, Nelson 7002.
ZL2WJP Palmer, J. M., Paraparaumu 6010.
ZL2WJT Taylor, J. G., 4a Conway Road, Eltham 4657.
ZL2WJW Watt, J. J., 19 Chamberlain Road, Masterton 5901.
ZL2WKI Details unknown.
ZL2WKM Mulholland, K. J., 22b High Street, Eltham 4657.
ZL2WLI Inkpen, L W, 1 Cascade Crescent, Palmerston North 5301.

ZL2WLY Details unknown.
ZL2WME Wilson, Eileen, Redwood Valley Lane, RD 1, Richmond 7031.
ZL2WMJ Jackson, M. M., 6 Cambridge Terrace, Masterton 5901.
ZL2WMM Mulholland, M. J., 22b High Street, Eltham 4657.
ZL2WMS Details unknown.
ZL2WN Guppy, R. P., 6 Mascot Street, Tawa, Wellington 6006.
ZL2WNB Barry, N. W., 20 Gladstone Street, Hawera 4800.
ZL2WOG Harris, P. F., 19 Campbell Street, Feilding 5600.
ZL2WOL Details unknown.
ZL2WON Kirkland, J. C., 36a Haydon Street, Palmerston North 5301.
ZL2WOW Herbert, A. R., 60 Karina Road, New Plymouth 4601.
ZL2WP Douglas, W. L. B., 20 Stanhope Grove, Korokoro, Lower Hutt 6008.
ZL2WPC Details unknown.
ZL2WPR Ryan, P. H., 8a Keith Street, Wanganui 5001.
ZL2WPS Shanaham, Peter, 50 Homewood Crescent, Karori, Wellington 6005.
ZL2WR Whitehead, E. S., Unit 12, Taradale Masonic Village, 15 Devonshire Place, Taradale, Napier 4001.
ZL2WRC Wairarapa College Radio Club, Pownall Street, Masterton 5901.
ZL2WRH Details unknown.
ZL2WRM Millar, L. R., 18 Armagh Terrace, Marton 5460.
ZL2WRW Whenmouth, R., 116 Willowpark Road South, Hastings 4201.
ZL2WS Scott, W. G., PO Box 859, Napier 4015.
ZL2WSB Bruce, S. K., RD 14, Ashhurst 5451.
ZL2WSP Details unknown.
ZL2WSS Wallace, S. A., 25a Smith Street, Dannevirke 5491.
ZL2WSY Kemp, A. B., 344 South Road, Hawera 4800.
ZL2WW Hyndman, J. E., 7 Wadsworth Crescent, Blenheim 7301.
ZL2WWT Triggs, D., 22 Norrie Street, Feilding 5600.
ZL2WZ Wade, F., 26 Isabel Grove, Wainuiomata 6008.
ZL2WZZ Saelmans, J. J., 172a Pembroke Street, New Plymouth 4601.
ZL2XA Radio for the Print Disabled Inc., PO Box 360, Levin 5500.
ZL2YET Arnold, W. M., (Station located in Seatoun, Wellington), PO Box 30-344, Lower Hutt 6315.
ZL2ZLW Hill, I. McK. G., 29 Holdsworth Avenue, Upper Hutt 6007.
ZL2ZZZ Yamaya, K., C/O 22 Pethy Bridge Street, Motueka 7161.

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ZL3AAC Atkinson, H. R., 98 Condell Avenue, Papanui, Christchurch 8005.
ZL3AAD Alderson, G. E., 7 Priors Road, RD 1, Rangiora 8254.
ZL3AAG Batterbury, C., 46 Glenmore Avenue, Casebrook, Christchurch 8005.
ZL3AAL Vincent, R. K., 1 Hall Street, Kaiapoi 8252.
ZL3AAN Colville, L. M., 115 Cameron Street, Ashburton 8300.
ZL3AAO Ballantyne, S. T., 16 Dellow Place, Spreydon, Christchurch 8002.
ZL3AAS Silke, A. J., 61a Cheyenne Street, Upper Riccarton, Christchurch 8004.
ZL3AAT van Waelsden, F. H. A. M., 138 Rolleston Street, Rakaia 8355.
ZL3AAU Miller, J. G., Whitewood Crescent, RD 5, Christchurch 8021.
ZL3AAY Bowie, A. F. S., 4 Westburn Terrace, Burnside, Christchurch 8005.
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ZL3AB Sullivan, M. T. D., 1 Tapiri Street, Parklands, Christchurch 8009.
ZL3ABA Allan, S. L., 74 Good Street, Rangiora 8254.
ZL3ABB McKay, D. J., 55 Wingate Street, Christchurch 8005.
ZL3ABC Hooker, R. O., 272 Wainoni Road, Christchurch 8007.
ZL3ABD Hancock, C. W. I., 17 Mafeking Street, Christchurch 8007.
ZL3ABH Middlemiss, I. R., 427 Linwood Avenue, Christchurch 8006.
ZL3ABJ Jensen, B. D., 21 Colwyn Street, Papanui, Christchurch 8005.
ZL3ABN Lawry, D. W., 90 Awatea Road, Halswell, Christchurch 8003.
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ZL3ABP Snushall, J. G., PO Box 108, Kaikoura 8280.
ZL3ABR Harris, G. T., 283 Cannon Hill Crescent, St Andrews Hill, Christchurch 8008.
ZL3ABU Strachan, I. S., 22 Rowses Road, Christchurch 8007.
ZL3ABW Maunder, H. B., 29 Awatea Road, Wigram, Christchurch 8004.
ZL3ABY O'Sullivan, K. D., 53 Marlborough Street, Greymouth 7801.
ZL3AC Christchurch Amateur Radio Club, see Branch Directory.
ZL3ACA Nuth, G. L. (Miss), 47 Marlow Road, Aranui, Christchurch 8007.
ZL3ACC Chambers, C. H., 21b De Ville Place, Christchurch 8006.
ZL3ACD Batchelor, G. W., 41 Kirkwood Avenue, Christchurch 8004.
ZL3ACE Dodgshun, J. C., 10 Devonport Lane, Christchurch 8001.
ZL3ACF Richardson, J. T., 3 Monowai Crescent, Christchurch 8009.
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ZL3ACL Bidlake, R. P., 24 James Street, Timaru 8601.
ZL3ACM Zampese, M. J. (Mrs), 26 Olwyn Terrace, Frankton, Hamilton 2001.
ZL3ACN Honey, R. M., 167 Brittan Street, Hokitika 7900.
ZL3ACP Senior, G. J., Homle Station, RD 2, Timaru 8621.
ZL3ACS Borgfeldt, C. D., 37 Blankney Street, Hornby, Christchurch 8004.
ZL3ACT Patten, G. J., 3 Veitches Road, Casebrook, Christchurch 8005.
ZL3ACU McKay, B., 23 Palmside Street, Hoon Hay, Christchurch 8002.
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ZL3ADC Lintott, N., 49 Jocelyn Street, Redwood, Christchurch 8005.
ZL3ADF Hirtzel, J. E., 451 Greers Road, Christchurch 8005.
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ZL3ADH Boote, R. J., 8 Hinton Road, Karoro, Greymouth 7801.
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ZL3ADO Dolamore, Carleen, 50 Ohoka Meadows Drive, Mandeville, RD 2, Kaiapoi 8252.
ZL3ADP MacDonald, D. C., 221 Middle Road, Ashburton 8300.
ZL3ADQ Hamilton, J. C., 12 Highcrest Heights, Christchurch 8002.
ZL3ADS Squire, D. D., 15 Alexandra Street, Temuka 8752.
ZL3ADT Johnson, R. D., 1021 Tram Road, Mandeville, RD 2, Kaiapoi 8252.
ZL3ADV Phillips, R. W., 31 Appleby Crescent, Christchurch 8005.
ZL3ADZ Wignall, T. J. S., 7 Lakeview Place, Halswell, Christchurch 8003.
ZL3AE May, Sharron, 156 Pages Road, Timaru 8601.
ZL3AF Ashburton Branch NZART (Inc.), see Branch Directory.
ZL3AFB Stirling, K. W., 37 Kelvin Crescent, Ashburton 8300.
ZL3AFC Simpson, P. R., 168c Monks Spur Road, Redcliffs, Christchurch 8008.
ZL3AFE Zampese, L., 105 Ellicott Road, Hamilton 2001.
ZL3AFH Latham, W. I., 168 Mackenzie Avenue, Opawa, Christchurch 8002.
ZL3AFN Griffiths, J. P., 105 Brougham Street, Westport 7601.
ZL3AFQ Duxbury, I. N., Stephen's Bay Road, Stephen's Bay, RD 2, Motueka 7160.
ZL3AFS Pearcy, E. A., 239 Condell Avenue, Papanui, Christchurch 8005.
ZL3AFV Henden, J. R., 371 Harewood Road, Christchurch 8005.
ZL3AFW Wilson, W. E., Sandy Knolls Road, RD 1, Christchurch 8021.
ZL3AFZ Hall, C. L., 20 Sumner Street, Spreydon, Christchurch 8002.
ZL3AG Gibson, E. N., 36 Grahams Road, Ilam, Christchurch 8004.
ZL3AGA Bolland, N., 12 Brent Place, Christchurch 8005.
ZL3AGB Barrett, T., 47 Arnold Street, Sumner, Christchurch 8008.
ZL3AGF Blanchard, J. S., 37 Reynolds Avenue, Bishopdale, Christchurch 8005.
ZL3AGL Sinclair, S., 54 Withells Road, Avonhead, Christchurch 8004.
ZL3AGM Jackson, B. A., 22 Guadeloupe Crescent, Granada Village, Wellington 6004.
ZL3AGP Thomson, G. G., 10 Hanrahan Street, Christchurch 8004.
ZL3AGQ Harris, D. W., 67 Ayers Street, Rangiora 8254.
ZL3AGS Lovell, J. D., 41 Yardley Street, Avonhead, Christchurch 8004.
ZL3AGT Foster, I. M., 329 Waikawa Road, Picton 7372.
ZL3AGY Moyle, J. R., 68c Clyde Road, Christchurch 8004.
ZL3AH Hernandez, A., c/- ZL4HU, PO Box 7, Clyde, Central Otago 9180.
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ZL3AHM Dineen, R. T., 106 Halswell Junction Road, Halswell, Christchurch 8003.
ZL3AHN Whitley, W. G., 13 Heyders Road, Christchurch 8009.
ZL3AHO Reed, B. S., 105 SpinnakeRDrive, Whitby, Porirua 6006.
ZL3AHP Payne, A. T., 9 Factory Road, Belfast, Christchurch 8005.
ZL3AHQ McDonald, A. W., 73a Cranford Street, St Albans, Christchurch 8001.
ZL3AHS Symes, Barbara, 783 Downs Road, RD 1, Rangiora 8254.
ZL3AHT Holland, Sue, 15 Zephyr Terrace, Governors Bay, Lyttelton 8033.
ZL3AHU Holland, M. C., 15 Zephyr Terrace, Governors Bay, Lyttelton 8033.
ZL3AHX Wells, P. H., 27 Samuel Street, Hoon Hay, Christchurch 8002.
ZL3AHY Lovell, Mary, 41 Yardley Street, Avonhead, Christchurch 8004.
ZL3AI Fraser, D. J., PO Box 12, Waipara 8270.
ZL3AIB Timms, R. C., 7 Derenzy Place, Christchurch 8004.
ZL3AIC Chilton, M. T., 183 Belfast Road, Belfast, Christchurch 8005.
ZL3AID Hawksley, K. A., 4 Winchfield Street, Christchurch 8007.
ZL3AIK Taylor, D. A., 78 Wingatui Road, Mosgiel 9007.
ZL3AIV Rowlands, R. J., 6 Centennial Avenue, Christchurch 8004.
ZL3AIX Tillman, E. S., 19b Mulberry Place, Christchurch 8005.
ZL3AJ McDonald, K. R., 44 Inwoods Road, Christchurch 8009.
ZL3AJA Keeley, L. J., 23 Wills Street, Ashburton 8300.
ZL3AJC Strachan, J. H., 41 New Brighton Road, Christchurch 8006.
ZL3AJE Robbins, D. J., 66 Acacia Avenue, Christchurch 8004.
ZL3AJK Jenkins, R. M., 10 Alpine View Lane, Burwood, Christchurch 8009.
ZL3AK Rowe, D. J., 10 Marama Crescent, St Andrews Hill, Christchurch 8008.
ZL3AL Smythe, G. C., 147 Highsted Road, Bishopdale, Christchurch 8005.
ZL3AN McLean, J. L., PO Box 6, Westport 7615.
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ZL3AP Whitfield, S. J. N., 48 Hawthornden Road, Avonhead, Christchurch 8004.
ZL3APP Parkyn, P. R., 4 Witham Street, Hornby, Christchurch 8004.
ZL3AQ Mattingley, G. T., 89 Creek Road, Ashburton 8300.
ZL3AR Hunter, A. M., Cochranes Road, RD 7, Ashburton 8300.
ZL3ARJ Adams, R. J., 30 Wesley Street, Kaiapoi 8252.
ZL3ARM Maher, R. H., 172e Rocking Horse Road, Christchurch 8007.
ZL3AS Murray, Andrew.
ZL3ATV O'Brien, C. M., 104 Estuary Road, Christchurch 8007.
ZL3AV Blyth, D. H., 36a Chipping Lane, Redwood, Christchurch 8005.
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ZL3BA Details unknown.
ZL3BAB Ackroyd, B. E. I. (Mrs), Ackroyd Road, Waitohi, RD 25, Temuka 8752.
ZL3BB Gray, G. W., 31 Denniston Crescent, Redwood, Christchurch 8005.
ZL3BCR Rowe, B. C. T., 8 Taumutu Street, Southbridge 8150.
ZL3BE Christchurch Boys' High School Radio Club, PO Box 8157, Riccarton, Christchurch 8034.
ZL3BG Himing, L. C., 23 Coopers Road, Shirley, Christchurch 8006.
ZL3BH Bowman, G. R. B., Ashwood Park Retirement Village, 128-130 Renwick Road, Blenheim 7301.

ZL3BI Brice, K. L., 18 College Avenue, Christchurch 8005.
ZL3BM Means, C. B., 1318 Blythe Road, RD 3, Cheviot 8271.
ZL3BOB Details unknown.
ZL3BP Mountford, T. G., 2/207a Otipua Road, Timaru 8601.
ZL3BPA Dawson, S. F., 148b Hawthornden Road, Avonhead, Christchurch 8004.
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ZL3BR White, M. G., 36 Margaret Street, Stratford 4700.
ZL3BRB Details unknown.
ZL3BRC Reefton-Buller Amateur Radio Club, see Branch Details.
ZL3BS Tweedie, S. B., 167 Wales Street, Oaklands, Christchurch 8003.
ZL3BSH Richards, P. D., 7 Mortimer Street, Waimate 8791.
ZL3BT White, E. I., 95 Abberley Crescent, St Albans, Christchurch 8001.
ZL3BW Details unknown.
ZL3BX Pattrick, B. L., 1 Kanuku Place, Cashmere, Christchurch 8002.
ZL3BY Halford, B. B., 37 McHardie Street, Wallaceville, Upper Hutt 6007.
ZL3BZ Johnson, C., 7 Hillview Place, Pleasant Point 8772.
ZL3CA Sandford, T. W., Address unknown.
ZL3CAN Howell, H. G. M., 12a Salford Avenue, Christchurch 8005.
ZL3CAR Canterbury Amateur Radio Development Society Inc., PO Box 21-188, Edgeware, Christchurch 8030.
ZL3CB Flecknoe, G. A., 6 Kyeburn Place, Christchurch 8004.
ZL3CC Crosby, K. G., 175 Trevors Road, Ashburton 8300.
ZL3CE Hewson, J. N., 8 Dunns Avenue, Pines Beach, Kaiapoi 8252.
ZL3CED Dawson, C E S, 26 Taranaki Drive, Woodend 8255.
ZL3CG Silverwood, K., 12 Banbury Street, Waimangaroa 7650.
ZL3CH Cook, H. P., 5/16 Wanaka Place, Mairehau, Christchurch 8005.
ZL3CHC Christchurch Digipeater.
ZL3CJ Parker, T. L., 148b Panorama Road, Sumner, Christchurch 8008.
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ZL3CM Burrell, K. M., 5 Jacaranda Grove, Maungaraki, Lower Hutt 6009.
ZL3CN Mantell, G. N., 39 Cook Drive, Whitianga 2856.
ZL3CO Wylie, P. B., 101 Englefield Road, Belfast, Christchurch 8005.
ZL3COL Rowe, C. G., 20 Kingsbury Avenue, Rangiora 8254.
ZL3CP Details unknown.
ZL3CR Smith, W. E., 9 Wolsey Place, Hillmorton, Christchurch 8002.
ZL3CS Downer, G. H., 29a Grange Street, Opawa, Christchurch 8002.
ZL3CSB Details unknown.
ZL3CT Bennett, R. S., 67 Aronui Road, Alexandra 9181.
ZL3CTN Scott, M. J., 397b Durham Street, Christchurch 8001.
ZL3CU Moffatt, S. Z., 17 Wayside Avenue, Christchurch 8005.
ZL3CV Chapman, A. R. B., 2/70 Proctor Street, Papanui, Christchurch 8005.
ZL3CW Calvo, J., PO Box 593, Pukekohe 1800.
ZL3CX Emerson, T. C., 67 Epsom Avenue, Epsom, Auckland 1003.
ZL3DA Johnson, D. A., 56 Thorp Street, Motueka 7161.
ZL3DAC Croker, K. J., c/- Waimangaroa Post, via Westport 7650.
ZL3DAT Cullen, L., 46 Wilton Crescent, Christchurch 8005.
ZL3DB Buschl, B. D., c/- Sorenson, 62 Shortland Street, Christchurch 8006.
ZL3DC Grindrod, R. J., 5 Macrocarpa Place, Ranui, Auckland 1008.
ZL3DD Mitchell, A. R., 55 Shoreham Street, Blockhouse Bay, Auckland 1007.
ZL3DES Thomas, D. J., 90 Allens Road, Ashburton 8300.
ZL3DF Ellis, M. R., 41 Welsford Street, Woodend 8255.
ZL3DG Hood, N. D., 47a Aorangi Road, Christchurch 8005.
ZL3DGW Ward, D. G., (VK4DGW), PO Box 209, Bracken Ridge, Queensland 4017, Australia.
ZL3DH Hardie, W. S., 245a Harewood Road, Christchurch 8005.
ZL3DI Tylee-Porter, G. J., 62 Broad Street, Southbridge 8150.
ZL3DJ Gill, M. E., River Road, Greenpark, RD 2, Christchurch 8021.
ZL3DL Barker, L. G., 37 Burwood Road, Burwood, Christchurch 8009.
ZL3DM McGuire, Dave, 14 Snell Crescent, Waihi Beach, Waihi 2980.
ZL3DO O'Malley, D. B., 72 Crofton Road, Christchurch 8005.
ZL3DP Meikle, B., 24 Abraham Heights, Nelson 7001.
ZL3DR Godfrey, R. J., Main South Road, RD 2, Kaikoura 8280.
ZL3DS Brewster, D. W., Address unknown.
ZL3DT Searle, G. G., Lake Mahinapua, Hokitika 7900.
ZL3DV Jefferis, E. W., 4 Cunningham Street, Leeston 8151.
ZL3DW Barron, Andrew, 124 St James Avenue, Papanui, Christchurch 8005.
ZL3DWW Watts, D. W., 8 Holmes Street, Waimate 8791.
ZL3DX McGee, W. H., 116b Highsted Road, Harewood, Christchurch 8005.
ZL3DXC Canterbury DX Association, Trustee: ZL3NZ, Waikuku Beach 8254.
ZL3DY Firman, R. K., F2 - 16 Norwood Street, Timaru 8601.
ZL3DYL Croker, Jeanette, c/- Waimangaroa Post, via Westport 7650.
ZL3DZ Thomson, G., 2 Naylor Street, Waimate 8791.
ZL3FB Schroeder, W. F. (Rev), The Vicarage, 8 Roxburgh Street, Christchurch 8002.
ZL3FG O'Neill, J. J., 26 McBratneys Road, Christchurch 8006.
ZL3FJ Brown, D. A., 62 Hudson Street, Christchurch 8005.
ZL3FK Hepburn, L. D., 22 Gwynfa Avenue, Cashmere, Christchurch 8002.
ZL3FN Wilson, R. J., 11 High Street, Greymouth 7801.
ZL3FO Blackmore, J. H., 364 Riverlaw Terrace, St Martins, Christchurch 8002.
ZL3FOX Fox, A. R. E., 88 Westholme Street, Bryndwr, Christchurch 8005.
ZL3FP Kyle, E. A. J., c/- PJ Rogers, 413 Cashmere Road, Christchurch 8002.
ZL3FR Nixon, M. A., Address unknown.
ZL3FT Clapham, T. S., Address unknown.
ZL3FU McPhail, T. K., 7 Ostend Place, Christchurch 8004.
ZL3FW O'Brien, J. R., 68a Windermere Road, Papanui, Christchurch 8005.
ZL3GA Clark, G. D., 38a Sneyd Street, Kaiapoi 8252.
ZL3GB Bryant, H. G. H., 44 Ward Street, Kaikoura 8280.
ZL3GC Baker, D. M., PO Box 234, Ashburton 8300.
ZL3GD Donovan, G. J., PO Box 191, M.P.C. BB 3577, B.S.B, Brunei, S.E. Asia.
ZL3GE Welford, A. R., 12 Devon Street, Timaru 8601.
ZL3GK Richardson, T. C. W., 12 Hammond Place, Spreydon, Christchurch 8002.
ZL3GL May, Glenn, 156 Pages Road, Timaru 8601.
ZL3GM Pimm, O. W., 50 Ohoka Meadows Drive, Mandeville, RD 2, Kaiapoi 8252.
ZL3GN Details unknown.
ZL3GO Scott, T. R., 12 Osborn Grove, Ashburton 8300.
ZL3GP Middlemiss, P. G., 17 De Bloge Place, Burwood, Christchurch 8006.
ZL3GR Rowe, N. L., PO Box 4013, Mount Maunganui South 3030.
ZL3GS Wright, G. M., 25 Dunedin Street, Redwood, Christchurch 8005.
ZL3GT Somerville, J. H., 14 Park Lane, Timaru 8601.
ZL3GU Hughes, J. R., 128 Preston Road, Blaketown, Greymouth 7801.
ZL3GV Kerdemelidis, T., Flat 1, 421 Worcester Street, Christchurch 8001.
ZL3GW Searle, Val, 7 Whitcombe Terrace, Hokitika 7900.
ZL3GX Chapman, Alan, 7 Dellow Place, Spreydon, Christchurch 8002.
ZL3GY Westland Branch NZART, see Branch Directory.
ZL3GZ Smith, H. E., 38 Percy Street, Blenheim 7301.
ZL3HAM Buckland, T, 3100 Tram Road, Bennetts, RD, Oxford 8253.
ZL3HC Brittenden, C. E. R., 329 Wainoni Road, Christchurch 8007.
ZL3HD Chambers, D. H., 5 Stiles Place, Dallington, Christchurch 8006.
ZL3HF McDonald, B. M., 43 Rimu Street, Timaru 8601.
ZL3HG Davy, K. T., 65 Stafford Street, Hokitika 7900.
ZL3HGB Bouwknegt, H. G., 35 Elizabeth Street, c/- PDC, Cave 8770.
ZL3HH Wylie, R. L., 21 Vickery Street, Kaiapoi 8252.
ZL3HN Holtum, J. W., 461 Johns Road, Harewood, Christchurch 8005.
ZL3HP Hoving, P., 24 Royal Park Drive, Parklands, Christchurch 8009.
ZL3HT Lyford, A. R., 101 Dowse Drive, Maungaraki, Lower Hutt 6008.
ZL3HU Sandford, B. D., 19a Mons Avenue, Mt Roskill, Auckland 1004.
ZL3HW Wallace, C. W., 36 Rempstone Drive, Halswell, Christchurch 8003.
ZL3HY Fleming, J. G., 9 Kibblewhite Street, PO Box 18-714, New Brighton, Christchurch 8030.
ZL3HZ Southgate, W. A., 7 Paeroa Street, Christchurch 8004.
ZL3IA Tyerman, P. F., 37a Penrith Avenue, Somerfield, Christchurch 8002.
ZL3IB Walker, J. R. L., 19 Athol Terrace, Christchurch 8004.
ZL3IC McCulloch, E. N., 259 Williams Street, Kaiapoi 8252.
ZL3IDA Andrews, I. D., PO Box 8393, Riccarton, Christchurch 8034.
ZL3IE Hopkinson, L. G., Unit 1, 16 Norwood Street, Timaru 8601.
ZL3IG Ross, P. J., 4 Oakfield Street, Christchurch 8005.
ZL3IJ Inglis, J. M., 288 Estuary Road, Christchurch 8007.
ZL3IM Sullivan, J. T., 34 Rollesby Street, Christchurch 8002.
ZL3IS Oka, N., c/- Bell, 203 Weston Road, Christchurch 8005.
ZL3IT MacDonald, J. D., No 2 RD, Ranfurly, Central Otago 9071.
ZL3IU Gray, N. C., Franks Road, RD 6, Ashburton 8300.
ZL3IX Smith, G, 995 Lower Styx Road, Brooklands, Christchurch 8009.
ZL3JA Anderson, John C, 191 West Belt, Rangiora 8254.
ZL3JB Burke, J. P., 246 Main North Road, Redwood, Christchurch 8005.

ZL3JD van Kuilenburg, Phil, 45 Farrelly Avenue, Mount Roskill, Auckland 1004.
ZL3JE Stewart, D. A., 33 King Street, Pareora 8790.
ZL3JF Henderson, H. P., 35 Hillview Crescent, Timaru 8601.
ZL3JG Rawstorn, G. J., 15 Tai Paku Paku Road, Seatoun Heights, Wellington 6003.
ZL3JI Foulds, L. F., 45 Jervois Street, Christchurch 8007.
ZL3JJ Crump, M. W., 55b Newnham Street, Rangiora 8254.
ZL3JKL Details unknown.
ZL3JL McFarlane, A. R., 88 Chalmers Avenue, Ashburton 8300.
ZL3JM Bennett, P. W., 85 Leinster Avenue, Raumati South, Wellington 6010.
ZL3JN Mummery, B. H., 8 McIntyre Street, Shirley, Christchurch 8001.
ZL3JO Johnstone, G V O, F/2 28 New Brighton Road, Christchurch 8006.
ZL3JQ Poll, A. K., 155 Halswell Road, Christchurch 8002.
ZL3JR Kelly, S. J. C., Wild Road, RD 5, Christchurch 8021.
ZL3JS Smith, K. R., 231 Church Street, Timaru 8601.
ZL3JT McMahon, D. D., 15 Harling Avenue, Hillmorton, Christchurch 8002.
ZL3JU Sorensen, A. G., 62 Shortland Street, Wainoni, Christchurch 8007.
ZL3JV MacGeorge, B. A., 9 Opie Street, Waimate 8791.
ZL3JW Johnston, Lance, 2 Waitaki Street, New Brighton, Christchurch 8007.
ZL3JY Stalker, J. P., Greenpark, No 4 RD, Christchurch 8021.
ZL3JZ Dumbleton, R. S., 74 Kaiwara Street, Christchurch 8002.
ZL3KA Macer, J., 31 Colwyn Street, Papanui, Christchurch 8005.
ZL3KB Barnsdale, K. P., 50 Cardrona Street, Christchurch 8007.
ZL3KC Melse, J., PO Box 304, Greymouth 7815.
ZL3KD Harding, A. G. F., 6 Bowline Place, Whitby, Porirua 6006.
ZL3KEL Details unknown.
ZL3KG Gibbins, Kevin C., 41 Dunn Street, Christchurch 8002.
ZL3KH Heyworth, K. C., 327 River Road, Richmond, Christchurch 8001.
ZL3KI Jackson, D. W., 13 Kim Crescent, Blenheim 7301.
ZL3KJ Banfield, John, 3 Fenhall Street, Christchurch 8004.
ZL3KK Goodare, T. T., 1 Totara Drive, Oxford 8253.
ZL3KL Howell, B. C., 6 Deepdale Street, Christchurch 8005.
ZL3KO Garlough, R H, c/- ZL4HU, PO Box 7, Clyde, Central Otago 9180.
ZL3KQ Hellyar, G. I., 93 Marshland Road, Christchurch 8006.
ZL3KR Hughes, A. G., 4 Exton Street, Redwood, Christchurch 8005.
ZL3KS Downer, M. H., 34 Torquay Place, Christchurch 8005.
ZL3KU Waters, K. A., 33 Cook Street, Timaru 8601.
ZL3KV Brown, H. H., 77 The Avenue, Sunnybank Hills, Brisbane, QLD 4109, Australia.
ZL3KW Willis, K., 5 Wisteria Close, Queenspark, Christchurch 8009.
ZL3KWH Heyward, K. W., 46 Yellowstone Crescent, Christchurch 8009.
ZL3LA Ludbrook, S. W., 175a Palmers Road, New Brighton, Christchurch 8009.
ZL3LB Hamilton, W. R., 9b Amstel Lane, Shirley, Christchurch 8001.
ZL3LE Guard, B. N., S.H 69, Cronadun, RD 1, Reefton 8290.
ZL3LI Neal, J. V. (Rev), 118 Budge Street, Blenheim 7301.
ZL3LIZ Buckland, L., 3100 Tram Road, Bennetts, RD, Oxford 8253.
ZL3LJ Jordan, Les (L. P. W.), c/- S. Smith, Pigeon Flat, Waitati, RD 2, Dunedin 9021.
ZL3LJC Osborne, R. R. W., C/- Camp David RD 3, Waipara 8270.
ZL3LP Brown, H. P., 8 Neill Street, Hornby, Christchurch 8004.
ZL3LQ Paltridge, K. K., 131 Warrington Street, Christchurch 8001.
ZL3LS Miller, G. C., 30 Nirvana Street, Brooklands, Christchurch 8009.
ZL3LSP Details unknown.
ZL3LU Campbell, G. R., 24 Rosamund Place, Halswell, Christchurch 8003.
ZL3LX Kirkpatrick, I. J., 99 Bickerton Street, Christchurch 8007.
ZL3LY Eddington, J. A., 4 Tasman Place, Christchurch 8006.
ZL3LZ Dale, A. J. E., 7 Bradshaw Terrace, Riccarton, Christchurch 8001.
ZL3MA Kingswell, G. N., 333 King Street, Temuka 8752.
ZL3MB Details unknown.
ZL3MC McKenzie, D. S., 47 Kotare Street, Fendalton, Christchurch 8004.
ZL3ME Bramley, C. J. (Bram), 7 Edward Street, Prebbleton 8153.
ZL3MG Urlwin, R. A., PO Box 17-512, Sumner, Christchurch 8030.
ZL3MH Hely, M. O., RD 2, Christchurch 8021.
ZL3MHB MED Listed Beacon.
ZL3MHF MED Listed Beacon.
ZL3MI Sullivan, R. E., 103a Jeffreys Road, Bryndwr, Christchurch 8005.
ZL3MJ Lewis, C. T., 30 Te Rama Place, Wainoni, Christchurch 8007.
ZL3MJS Stubberfield, Mike, 138 Rutland Street, St Albans, Christchurch 8005.
ZL3MK May, K., 30 Nikau Place, Timaru 8601.
ZL3ML McNicol, A. D., 26 Gainford Street, Christchurch 8004.
ZL3MM Hills, R. I., 25 Rapaki Road, Christchurch 8002.
ZL3MO Cole, W. R., Grange Settlement Road, Temuka 8752.
ZL3MP Details unknown.
ZL3MQ McMaster, R. J., 23 Greens Road, RD 1, Kaiapoi 8252.
ZL3MS Brash, J. P., 5b Indira Lane, Cashmere, Christchurch 8002.
ZL3MSF Details unknown.
ZL3MT Thompson, M. C. (Dr), c/- RJ Burdon, 7 Elzy Street, Blenheim 7301.
ZL3MU Details unknown.
ZL3MW Details unknown.
ZL3MX Burnet, A M R, 10 Leda Place, North New Brighton, Christchurch 8009.
ZL3MY Searle, R. W., 7 Whitcombe Terrace, Hokitika 7900.
ZL3NA Robinson, D. G., Kowhitirangi, RD 1, Hokitika 7900.
ZL3NAI Batey, Stephanie, 408 Barrington Street, Spreydon, Christchurch 8002.
ZL3NB Carney, Bill, 174 Beach Road, Christchurch 8009.
ZL3ND Nelson, J. A., Glenaan Station, Methven 8353.
ZL3NE Gyde, R. M., 74 Hillwell Drive, Henderson, Auckland 1008.
ZL3NG McVicar, J. J., 17 Winchester Street, Merivale, Christchurch 8001.
ZL3NH Rogers, P. J., Corner Cashmere and Happy Home Roads, Christchurch 8002.
ZL3NJ Kerr, N. J. (Mrs), 359 F2 Mairehau Road, Burwood, Christchurch 8009.
ZL3NL Tait, A. Mc M., 8 Ashbourne Street, Burnside, Christchurch 8005.
ZL3NO Johannis, K. L., Unit 1, Bainswood, 191 King Street, Rangiora 8254.
ZL3NQ Drever, G. R., 36c Burnett Street, Ashburton 8300.
ZL3NRA Hunt, Ray, "Cantara", Scargill Valley, RD 3, Amberley 8251.
ZL3NS Ositis, T., 128 Brookside Terrace, Christchurch 8005.
ZL3NT Blackwell, G. C., 5/82 Lincoln Road, Spreydon, Christchurch 8002.
ZL3NW Mackintosh, R. M., 144 Main North Road, RD 1, Kaiapoi 8252.
ZL3NX Edgar, M. M., 16 St Clio Street, Ilam, Christchurch 8004.
ZL3NZ Dacombe, G., 22 Allin Drive, Waikuku, North Canterbury 8254.
ZL3NZR Details unknown.
ZL3OAK Details unknown.
ZL3OD Barnes, G. J., 37 Carlton Mill Road, Merivale, Christchurch 8001.
ZL3OE Richards, D. L., 38 Frankleigh Street, Christchurch 8002.
ZL3OF Milne, I. F., 401a Barrington Street, Spreydon, Christchurch 8002.
ZL3OJ Digby, N. M., 4 Norfolk Street, Christchurch 8005.
ZL3OK Details unknown.
ZL3OR Fallen, J. A., 116 Warren Crescent, Hillmorton, Christchurch 8002.
ZL3OT Bromley, R. N., 19 Denham Terrace, Waikari 8276.
ZL3OU Bellamore, A. H., 87 Radley Street, Christchurch 8002.
ZL3OX Mitchell, C. J., 320 Mt Pleasant Road, Christchurch 8008.
ZL3PAH Holliday, P. A., 275 River Road, Richmond, Christchurch 8001.
ZL3PB Lobb, G. W., 2-86 Keith Compton Drive, Tweed Heads, N S W 2485, Australia.
ZL3PC Haines, P. C., 21 Macaulay Street, Timaru 8601.
ZL3PD Pluck, R. L., 2/257 Cameron Street, Ashburton 8300.
ZL3PE Blyth, B. W., 2 De Courcy Place, Avondale, Christchurch 8007.
ZL3PH Rowe, B., 250 Grahams Road, Burnside, Christchurch 8005.
ZL3PI Bartrum, B. R., 31b Bowenvale Avenue, Cashmere, Christchurch 8002.
ZL3PK Allan, J. L., 74 Good Street, Rangiora 8254.
ZL3PL Lee, C. P., c/- St Clives, 62-70 Aldwins Road, Christchurch 8006.
ZL3PM McGee, P. D., 1 Craigieburn Street, Darfield 8172.
ZL3PN Boorer, G. F., 48a Newton Street, Timaru 8601.
ZL3PO Turner, D. K., PO Box 99, Ward, Marlborough 7350.
ZL3PP Crichton, R. J., 98 Estuary Road, South New Brighton, Christchurch 8007.
ZL3PR Petersen, C. M., 51 Derby Street, Westport 7601.
ZL3PS Streeter, P. J., 14 Maltby Avenue, Timaru 8601.
ZL3PTB Bower, P. T., 15 Harper Street, Timaru 8601.
ZL3PTP Collins, P. T. P., 489 Avonhead Road, Avonhead, Christchurch 8004.
ZL3PW Foster, P. J., 5a Vancouver Crescent, Christchurch 8006.
ZL3PWS Spinetto, P. W., 8 Melissa Place, Burnside, Christchurch 8004.
ZL3PX Chapman, G. A., 8 Boys Place, Christchurch 8001.
ZL3PZ Jackson, W. B., 42 Churchill Street, Kaikoura 8280.
ZL3QA Prentice, A. E., 26a Victoria Steet, Pahiatua, Wairarapa 5470.
ZL3QC Mullis, Noel, 104 Mooray Avenue, Bishopdale, Christchurch 8005.
ZL3QD Clark, E. R., 19 Farnswood Place, Redwood, Christchurch 8005.
ZL3QH Stanton, K. A., 17 Hanover Place, PO Box 31-095, Ilam, Christchurch 8030.
ZL3QI Wornall, C. J., 5 Menlo Terrace, St Andrews Hill, Christchurch 8008.
ZL3QJ Havord, P. R., RD 2, Palmerston, North Otago 9601.

ZL3QK Dawson, R., 41 Garlands Road, Christchurch 8002.
ZL3QL Carrell, T. D., 33 Ryeland Avenue, Christchurch 8004.
ZL3QO Allan, J. M., Egans Road, RD 1, Rangiora 8254.
ZL3QQ Seed, T. J., 4 Westmont Street, Ilam, Christchurch 8004.
ZL3QR Gillman, G. H., 496 Tuahiwi Road, 1 RD, Kaiapoi 8252.
ZL3QT Delis, J. B. G., 455a Johns Road, Harewood, Christchurch 8005.
ZL3QV Smith, R. H., 76 Santa Maria Avenue, Mount Pleasant, Christchurch 8008.
ZL3QX Mayo, G. J., PO Box 1091, Nelson 7015.
ZL3QY Belcher, E. W., 1 Hall Street, Cobden, Greymouth 7801.
ZL3QZ Daniels, F. J. H., Ngakawau, Westport 7650.
ZL3RA Riach, C. D., 25 Buffon Street, Waltham, Christchurch 8002.
ZL3RB Details unknown.
ZL3RC Signal, C. B., 8 Bridge Street, Temuka 8752.
ZL3RD Davey, D. R., 7 Westview Crescent, West Melton, RD 6, Christchurch 8021.
ZL3RE Bott, R. A., 9 Holmcroft Court, Cracroft, Christchurch 8002.
ZL3REX Handcock, R. A., 24 Fairfax Street, Murchison 7191.
ZL3RF Dickey, C. N., 20 Todd Avenue, Christchurch 8005.
ZL3RG Roberts, G. R., PO Box 9127, Addington, Christchurch 8030.
ZL3RI Boyes, J. B., c/- 6 Denley Gardens, Avonhead, Christchurch 8004.
ZL3RJ Hutton, B. G., 23 Manhire Street, Christchurch 8002.
ZL3RJK Kitchen, R J, 13 Northland Street, Grey Lynn, Auckland 1002.
ZL3RK Kirk, R. M. (Dr), 35 Tintern Avenue, Upper Riccarton, Christchurch 8004.
ZL3RL Tunnicliffe, D. N., PO Box 56-402, Dominion Road, Auckland 1030.
ZL3RM McKay, R. W., c/- United Airlines Operations (Fwd to Laxfo), PO Box 73-006, Auckland International Airport 1730.
ZL3RN Yeates, D. R., 69 St Andrews Hill Road, St Andrews Hill, Christchurch 8008.
ZL3RP Turner, Morry, 12 Camp Bay Road, Purau 8030.
ZL3RPS Radio Preservation Society of NZ (Ferrymead) Inc, (Trustee ZL3BI), 269 Bridle Path Road, Christchurch 8002.
ZL3RQ Riordan, G. B., 25a Taylors Avenue, Christchurch 8005.
ZL3RQV Details unknown.
ZL3RR North Canterbury Amateur Radio Club, see Branch Directory.
ZL3RS Campbell, D., 165a Foremans Road, Hornby, Christchurch 8004.
ZL3RT Rayner, L. A., 2 Pinewood Court, 179 Station Road, West Moors, Ferndown, Dorset BH22 OHR, England.
ZL3RU Bennett, R. G. T., 60 Kirkwood Avenue, Christchurch 8004.
ZL3RW Mackay, D. J., 22 Waipara Street, Cashmere, Christchurch 8002.
ZL3RX Thirkettle, R. J., PO Box 34-027, Fendalton, Christchurch 8030.
ZL3RZ King, S. P., 12 Nayland Street, Christchurch 8008.
ZL3SA Gibbs, R. A., 97 Leaver Terrace, North New Brighton, Christchurch 8009.
ZL3SB Riordan, A. A. C., 95 Crofton Road, Harewood, Christchurch 8005.
ZL3SC Shearman, G. D., 68 Proctor Street, Christchurch 8005.
ZL3SF Maloney, J. N., 31 Middlepark Road, Christchurch 8004.
ZL3SG Harbeck, A. D., 153 McHughs Road, RD 2, Kaiapoi 8252.
ZL3SH Hardie, S. R., 245a Harewood Road, Christchurch 8005.
ZL3SJ Fraser, G. J., 206 Major Hornbrook Road, Christchurch 8008.
ZL3SK Pattrick, T. L., 46 Sherborne Street, Christchurch 8001.
ZL3SM Graham, B. N., 230 Esplanade, Kaikoura 8280.
ZL3SMO May, Bryce, 156 Pages Road, Timaru 8601.
ZL3SN Oldham, J. E., 40 Russell Street, Westport 7601.
ZL3SO Kilkolly, J. W., 37 Haselden Street, Westport 7601.
ZL3SP Brookman, P. J., 361 Gardiners Road, Christchurch 8005.
ZL3ST Details unknown.
ZL3SU Orchard, P. J., 53a Joyce Crescent, Greymouth 7801.
ZL3SV Watson, G. L., PO Box 262, Motueka 7161.
ZL3SY Thomas, P. A., 270 Centaurus Road, Christchurch 8002.
ZL3SZ Dalrymple, D. L., 65 Frankleigh Street, Spreydon, Christchurch 8002.
ZL3TA Ritchie, M. V. H., 1/313 Estuary Road, South Brighton, Christchurch 8007.
ZL3TAA Fletcher, J. N., 7 Waiwera Place, Waiwera 1244.
ZL3TAB Hyde, I. E., 26 Aylmers Valley Road, Akaroa 8161.
ZL3TAC Collins, B. A., 37c Glenharrow Avenue, Avonhead, Christchurch 8004.
ZL3TAF Taege, B. S., 23 Holderness Place, Avonhead, Christchurch 8004.
ZL3TAG Cook, A. J., PO Box 5, Woodend 8255.
ZL3TAH Stevenson, M. A., 44 Patterson Terrace, Halswell, Christchurch 8003.
ZL3TAI Grandiek, J. N., 51 Trafalgar Street, Nelson 7001.
ZL3TAJ Gill, I. D. (Mrs), River Road, Greenpark, RD 2, Christchurch 8021.
ZL3TAM Details unknown.
ZL3TAO MacPherson, I. W., 10 Rhyl Place, Christchurch 8005.
ZL3TAR Visser, Hotse, 591 Barbadoes Street, Christchurch 8001.
ZL3TAS Prior, C. A., 128 Sisters Road, Parnassus 8271.
ZL3TAT Baker, E. J. A., PO Box 65, Lake Tekapo 8770.
ZL3TAY Ross, M. J., 32 Zephyr Terrace, Governors Bay, RD 1, Lyttelton 8033.
ZL3TB Somerville, J. D., PO Box 2936, Christchurch Mail Centre 8015.
ZL3TBB Details unknown.
ZL3TBC Grenfell, A. D., 34 Massey Crescent, Christchurch 8001.
ZL3TBD Symonds, A. C., 19 Stiles Place, Burwood, Christchurch 8006.
ZL3TBE Pritchard, D. V., Address unknown.
ZL3TBG O'Neill, T. J., 89 Pages Road, Christchurch 8006.
ZL3TBQ Johnstone, D. E., 291 Burwood Road, Christchurch 8009.
ZL3TBT Lee, M. O., 260 Cashmere Road, Halswell, Christchurch 8002.
ZL3TC Smith, Marjorie, 15 Ferry Road, Spring Creek, Blenheim 7350.
ZL3TCD Details unknown.
ZL3TCE Cobb, P. B., 2 Weymouth Grove, Wainuiomata 6008.
ZL3TCG Deans-Syddall, J. M. (Mrs), 48 Hawthornden Road, Avonhead, Christchurch 8004.
ZL3TCH Details unknown.
ZL3TCK Sands, A. J., PO Box 21-188, Edgeood, Christchurch 8030.
ZL3TCL Details unknown.
ZL3TCM Ramsey, R. B., 31 Rollesby Street, Hoon Hay, Christchurch 8002.
ZL3TCR Gillman, Bev, 496 Tuahiwi Road, 1 RD, Kaiapoi 8252.
ZL3TCT McCaw, R. C., 6 Farndale Place, Christchurch 8004.
ZL3TCU Duxbury, J. S., Genesis Drive, West Meton, RD 1, Christchurch 8021.
ZL3TCV Garraway, W. A., 120 Warren Crescent, Hillmorton, Christchurch 8002.
ZL3TCW Standeven, E. R., 24 Brynley Street, Hornby, Christchurch 8004.
ZL3TDA Shaw, Graham, Address unknown.
ZL3TDC Thomson, R. Y., 6 Princes Street, Temuka 8752.
ZL3TDD Marks, J. W. J., 20 Dobson Street, Christchurch 8002.
ZL3TDF Smith, B. A., "Charodale", Old West Coast Road, RD 1, Christchurch 8021.
ZL3TDI Details unknown.
ZL3TDL Wright, D. J., 5 Oakhurst Place, Russley, Christchurch 8004.
ZL3TDN Tait, J. J., 101a Nayland Street, Christchurch 8008.
ZL3TDS Taylor, E. G., 335 Hills Road, Christchurch 8001.
ZL3TDW Hider, Denise, PO Box 514, Rangiora 8254.
ZL3TDY Cavill, J. P., 36 Outram Grove, Kelson, Lower Hutt 6009.
ZL3TDZ Boyer, P. J. (Mrs), 52a Dillon Street, Blenheim 7301.
ZL3TEC Details unknown.
ZL3TEL Details unknown.
ZL3TEN MED Listed Beacon.
ZL3TEW Wilson, E. T. (Ted), 24 Collins Street, Ashburton 8300.
ZL3TFA Hall, B. W., 27 John Street, Temuka 8752.
ZL3TFC Dalton, T. P., 12 Peckham Lane, Christchurch 8006.
ZL3TFD Rhodes, D., Rapaki, PO Box 44, Lyttelton 8033.
ZL3TFI Wright, B. A., 64 Tennyson Street, Christchurch 8002.
ZL3TFJ Lundy, R. J., 10 Alpers Place, Hillmorton, Christchurch 8002.
ZL3TFK Weir, R. G., 64a Selwyn Street, Somerfield, Christchurch 8002.
ZL3TFM Details unknown.
ZL3TFN Wood, K. L. B., 126 Pikarere Street, Titahi Bay, Porirua 6006.
ZL3TFQ Dawkes, R. L., PO Box 14-012, Christchurch Airport 8030.
ZL3TFR Smales, K. A., 155 Moncks Spur Road, Redcliffs, Christchurch 8008.
ZL3TFS Soal, D. F., 13 Buckleys Terrace, Tinwald 8330.
ZL3TFW Van Til, H. J., 6 Mulberry Lane, Redwood, Christchurch 8005.
ZL3TFY Tizzard, R. W., 9 Chevy Place, Hoon Hay, Christchurch 8002.
ZL3TG Copland, G. M., 11 Peel Street, Christchurch 8005.
ZL3TGB Graham, J. C., 4 Ngaumatau Road, Point Howard, Lower Hutt 6008.
ZL3TGG Groom, C. B. G., 18 Queens Avenue, Waikuku Beach 8254.
ZL3TGN Nalder, G., Waller Street, Murchison 7191.
ZL3TGR Timewell, I. D., PO Box 706, Timaru 8615.
ZL3TGS Oliver, A. J., 2/32b Huntsbury Avenue, Christchurch 8002.
ZL3TGV Winslade, R. H., 15 Hunt Street, Timaru 8601.
ZL3TGW Details unknown.
ZL3TGX Henry, D. H., 34 Alexandra Street, Christchurch 8001.
ZL3TGZ Moyle, C. M. (Mrs), 68c Clyde Road, Christchurch 8004.
ZL3THB Cree, R. A., 18 Woolley Street, Christchurch 8007.
ZL3THI Wealleans, G. A., 37 Eglinton Street, Christchurch 8007.
ZL3THP Platt, R. G., PO Box 59, Rolleston 8150.
ZL3THQ Corbett, R. K., PO Box 5162, Papanui, Christchurch 8030.
ZL3TIC Foubister, M. A., 65 Innes Road, Christchurch 8005.
ZL3TIG McNeill, R. G., 39 Hackthorne Road, Christchurch 8002.
ZL3TIK Rodgers, P. N., 29 Porter Street, Ashburton 8300.
ZL3TIL Errington, J. G., 11 Paparoa Street, Christchurch 8005.
ZL3TIN Saville, P. G., 23a Tilford Street, Woolston, Christchruch 8006.

ZL3TIQ McCorkindale, D. R., 94 Clark Road, Hobsonville, Auckland 1008.
ZL3TIW Platt, Bev, PO Box 59, Rolleston 8150.
ZL3TIX Stevens, J. B., Sandy Knolls Road, RD 1, West Melton, Christchurch 8021.
ZL3TJA Thompson, D. A. J., Fairview, RD 2, Timaru 8621.
ZL3TJC Briggs, N. E., 124 Riverside Drive, Whakatane 3080.
ZL3TJD Wilson, P. J., 111 Hornsey Road, Melrose, Wellington 6003.
ZL3TJH Robinson, P. J., 10 Takahe Drive, Christchurch 8002.
ZL3TJJ Ward, A. J., 178 Bridle Path Road, Christchurch 8002.
ZL3TJL Lye, R. D., 7 Cromer Place, Christchurch 8007.
ZL3TJM Dillon, G. A., PO Box 28-164, Beckenham, Christchurch 8030.
ZL3TJN Hills, M. P., Wilsons Road, RD 9, Feilding 5600.
ZL3TJO O'Hare, James, 19 Hally Terrace, Temuka 8752.
ZL3TJQ Details unknown.
ZL3TJS Whitfield, B. W., 101 Soleares Avenue, Mt Pleasant, Christchurch 8008.
ZL3TJT Nicol, J. R., 10 Lochee Road, Christchurch 8004.
ZL3TJU McConnell, M. M. (Mrs), Orchard Reserve, 111 Gardiners Road, Christchurch 8005.
ZL3TJW Rickard, B. S., 37 Nelson Street, Ashburton 8300.
ZL3TJX Laughton, T. J., 12 Lancewood Drive, Westlake, Christchurch 8003.
ZL3TJY Allan, S. E. (Mrs), Egans Road, RD 1, Rangiora 8254.
ZL3TJZ Hines, M. J., 34 Celia Street, Christchurch 8008.
ZL3TK Martin, D. F., 19 Murray Street, Greymouth 7801.
ZL3TKA Gumbrell, C. B., 17 Ropata Crescent, Naenae, Lower Hutt 6009.
ZL3TKD Godfrey, C. Y. (Mrs), R. D 2, Kaikoura 8280.
ZL3TKG Neill, R. N., 39 Ellesmere Crescent, Palmerston North 5301.
ZL3TKH Details unknown.
ZL3TKI Empson, T. M., 1 Allom Lane, Christchurch 8002.
ZL3TKJ Forsythe, L. J., 65a East Belt, Lincoln 8152.
ZL3TKQ McInnes, G. W., 29 Harling Avenue, Hillmorton, Christchurch 8002.
ZL3TKR Dwyer, D. S., 10 Helmsdale Street, Christchurch 8009.
ZL3TKV Lang, A. N., 62 Rahera Street, Christchurch 8002.
ZL3TKW Williamson, I. S., Address unknown.
ZL3TKX Patterson, H. W., 33 Leinster Terrace, Lincoln 8152.
ZL3TKZ Details unknown.
ZL3TL Paterson, M. S., 120 Hastings Street East, Christchurch 8002.
ZL3TLA O'Donnell, L A, 39 Melton Street, Timaru 8601.
ZL3TLB Crawford, C. R., 89 Joseph Banks Drive, Whitby, Wellington 6006.
ZL3TLD Dore, B. L., 66a Cottonwood Street, Parklands, Christchurch 8009.
ZL3TLE Weir, D. R. (Mrs), 64a Selwyn Street, Somerfield, Christchurch 8002.
ZL3TLG Steffensen, K. A., 10a Sefton Street, Belfast, Christchurch 8005.
ZL3TLJ McConnell, D. A., Orchard Grove, 111 Gardiners Road, Christchurch 8005.
ZL3TLN Digby, C. M. (Mrs), 4 Norfolk Street, Christchurch 8005.
ZL3TLQ Harrall, E. D., 90 Gayhurst Road, Dallington, Christchurch 8006.
ZL3TLR Lee, P. B., 23a Salford Avenue, Christchurch 8005.
ZL3TLT James, K. D., 442 Pine Hill Road, Dunedin 9001.
ZL3TLU Chapman, R. C., PO Box 761, Dunedin 9015.
ZL3TLV Chapman, B. K. (Mrs), PO Box 761, Dunedin 9015.
ZL3TLW Perry, S. J., 31 Fusilier Street, Hillmorton, Christchurch 8002.
ZL3TLX Vickers, L. W., 17 Walkers Road, Lyttelton 8012.
ZL3TM Buchanan, W. A., 1 Howell Street, Waimangaroa 7650.
ZL3TMA Bettridge, M. J., 2 Cook Street, Carters Beach, Westport 7621.
ZL3TMB Barnes, Mike, PO Box 218, Christchurch 8015.
ZL3TMF Wilson, J. O., 15 Barnhill Crescent, Papakura 1703.
ZL3TMG Davidson, F. W., 24 Roberts Road, Christchurch 8004.
ZL3TMI Wilson, D. A., 58 Lane Street, Ashburton 8300.
ZL3TMK Officer, B. C., 30 Peterhouse Street, Tawa 6006.
ZL3TML Attewell, D. R., 40 Buchanans Road, Sockburn, Christchurch 8004.
ZL3TMP Pringle, N. F., Gladstone Street, Hawarden 8274.
ZL3TMQ Pot, M. J., 6 Te Kiteroa Grove, Churton Park, Wellington 6004.
ZL3TMS Seay, M. G., 6 Armack Drive, RD 5, Christchurch 8021.
ZL3TMT Sullivan, B., 78 Rowses Road, Aranui, Christchurch 8007.
ZL3TMX Details unknown.
ZL3TMZ Sutherland, B. S., 232 Weston Road, St Albans, Christchurch 8005.
ZL3TN Dowling, D. W., 244b Otipua Road, Highfield, Timaru 8601.
ZL3TNC Andrew, E. D. B., 448b Harewood Road, Bishopdale, Christchurch 8005.
ZL3TNH Details unknown.
ZL3TNJ Davis, B., 40 Laing Crescent, Heathcote, Christchurch 8002.
ZL3TNL Maunsell, P. B., Address unknown.
ZL3TNO Pearce, S. J., 11 Melford Close, Rangiora 8254.
ZL3TNQ Amtman, B. L., 28a Whitmore Street, Richmond, Christchurch 8001.
ZL3TNR Details unknown.
ZL3TNS Clay, P. D., 5 Appleby Highway, Richmond, Nelson 7002.
ZL3TNV King, J. H., 45 Roberta Drive, Christchurch 8002.
ZL3TNY Brown, S. D., 78a Hackthorne Road, Christchurch 8002.
ZL3TO Godkin, R. W., 147 Avondale Road, Christchurch 8007.
ZL3TOB Berry, R. D. E., C/- Electrical & Electronic Engineering Dept., University Of Canterbury, Private Bag 4800, Christchurch 8020.
ZL3TOC Marshall, R. W., 19 Fraser Crescent, Twizel 8773.
ZL3TOF Warren, P. A., 313 Wainoni Road, Christchurch 8007.
ZL3TOH Fordyce, A. A., 28 Meadow Street, Christchurch 8005.
ZL3TOI King, A. F., 2/363 Withells Road, Christchurch 8004.
ZL3TOJ Meyers, D. R., PO Box 14, Rangiora 8254.
ZL3TOY Kenton, B. A., 44 Dickens Street, Addington, Postal: PO Box 33-044, Barrington, Christchurch 8030.
ZL3TOZ Hurst, D. W., 31 Wakanui Road, Ashburton 8300.
ZL3TP MacLean, A. G., 9 Horton Street, Pleasant Point 8772.
ZL3TPA Layt, P. A., 15 Kerrs Road, Avonside, Christchurch 8006.
ZL3TPC Calder, P. A., C/- Postal Agency, Inangahua Junction 7650.
ZL3TPD Pitcaithly, D. J., 9 Witbrock Crescent, Burnside, Christchurch 8005.
ZL3TPE Obers, W. L. T., 154 Ross Street, Invercargill 9501.
ZL3TPJ Jarvis, Pauline, Sandy Knolls Road, RD 1, Christchurch 8021.
ZL3TPN Perkins, Nick, Doughboy Valley, Murchison, Postal: PO Box 86, Murchison 7191.
ZL3TPO Turnbull, P. D., 21 Earp Street, Johnsonville, Wellington 6004.
ZL3TPS Stewart, P. D., 12 Benmore Street, Timaru 8601.
ZL3TPT Thompson, B. N., 172 Kilmore Street, Christchurch 8001.
ZL3TPY Fotheringham, J. P., 35a Parnell Street, Lower Hutt 6009.
ZL3TQ Agnew, G. A., 10 Robyn Place, Lincoln 8152.
ZL3TQC Graham, J. N., 121 Rongotai Road, Kilbirnie, Wellington 6003.
ZL3TQD Roxburgh, J. G., 13 Pound Road, Leeston 8151.
ZL3TQE Aitchison, M. S., 61 Longfellow Street, Christchurch 8002.
ZL3TQH Wiltshire, R., 25 Moreland Avenue, Papanui, Christchurch 8005.
ZL3TQJ Morrison, L. I., Address unknown.
ZL3TR Haynes, J. C., 365 Marine Parade, South Brighton, Christchurch 8007.
ZL3TRB Brace, A. J., 14 Queen Street, Westport 7601.
ZL3TRD Details unknown.
ZL3TRE Cleine, N. C., RD 2, Utopia Road, Westport 7621.
ZL3TRG Genet, R., 67a Winters Road, Redwood, Christchurch 8005.
ZL3TRI Details unknown.
ZL3TRJ Spurdle, D. P., 22 Giles Place, Shirey, Christchurch 8006.
ZL3TRL Parker, G. T., 4 Margot Lane, Christchurch 8008.
ZL3TRQ Quantick, L. H. (Miss), 4 Ayers Street, Rangiora 8254.
ZL3TRR Nixon, H. E. (Mrs), Address unknown.
ZL3TRT Sawyers, T., Cape Road, RD 2, Westport 7621.
ZL3TRX Hadler, D. J., Sandy Knolls Road, RD 1, Christchurch 8021.
ZL3TS Phillips, S. J., 138 Hay Street, Linwood, Christchurch 8006.
ZL3TSG van Royan, G. H., 13 Massey Street, Willowbridge, RD 10, Waimate 8791.
ZL3TSJ Cole, G. J. (Mrs), Grange Settlement Road, Temuka 8752.
ZL3TSM Miller, N. E. (Mrs), Whitewood Crescent, RD 5, Christchurch 8021.
ZL3TSW Details unknown.
ZL3TT Symes, A. C. O., 783 Downs Road, RD 1, Rangiora 8254.
ZL3TTA Roe, T. A., Main Road, Riwaka, RD 3, Motueka 7160.
ZL3TTB Bonzon, R. T. J., 11 Cron Street, Franz Josef Glacier 7952.
ZL3TTD Details unknown.
ZL3TTJ Townsend, J. S., 50 Condell Avenue, Bryndwr, Christchurch 8005.
ZL3TTS Haywood, L. B., 45 Denise Crescent, Hornby, Christchurch 8004.
ZL3TTW Waters, B. M. T., 81b Eastern Terrace, Beckenham, Christchurch 8002.
ZL3TUM Details unknown.
ZL3TUN Details unknown.
ZL3TVA Hoving, J. P., 24 Royal Park Drive, Parklands, Christchurch 8009.
ZL3TVB Details unknown.
ZL3TVH Hansen, V A, 638 Gloucester Street, Christchurch 8006.
ZL3TVS Stubberfield, Vee, 138 Rutland Street, St Albans, Christchurch 8005.
ZL3TW Riley, T. R., 20 Rearsby Drive, Halswell, Christchurch 8003.
ZL3TWH Burrows, R. M., 25a Esperance Street, Christchurch 8005.
ZL3TWO MED Listed Beacon.
ZL3TWP Wells, M. E. (Mrs), 27 Samuel Street, Hoon Hay, Christchurch 8002.
ZL3TY McQuarrie, R. J., Weenink Road, Greymouth 7801.
ZL3TYZ Details unknown.
ZL3TZ Rio, N. N., 14 Gunson Street, Ponsonby, Auckland 1001.
ZL3TZO Details unknown.
ZL3UA Mulholland, F. S. T., 14 Penfold Square, PO Box 21, Leithfield Beach 8251.
ZL3UAB Chapman, P. J., F9/56 Hampshire Street, Aranui, Christchurch 8007.
ZL3UAC Crosby, A. A., 13 Princes Street, Waikari 8276.

ZL3UAD Woodfield, Alex (Mrs), 39 Aliford Avenue, One Tree Hill, Auckland 1006.
ZL3UAR May, Aaron, 156 Pages Road, Timaru 8601.
ZL3UBC Campbell, B. M., 37a Compton Street, Christchurch 8006.
ZL3UBU Details unknown.
ZL3UBV Details unknown.
ZL3UBW Carran, P. S., 50 Bengal Drive, Christchurch 8002.
ZL3UCD Andrews, Mark, 5 Heath Street, Spreydon, Christchurch 8005.
ZL3UCK Blanchett, C. E. L., 59 Shakespeare Street, Greymouth 7801.
ZL3UCL Lewer, C. J., 29a Wiremu Street, Papanui, Christchurch 8005.
ZL3UCM Perrin-Smith, R. S., 1 Ida Street, Greymouth 7801.
ZL3UCP Thomas, A. L., 37 Armott Heights West, Greymouth 7801.
ZL3UD McConnachie, Margaret, 5 Mold Street, PO Box 19, Middlemarch 9056.
ZL3UDH Hetherington, D. J., 43 Otipua Road, Timaru 8601.
ZL3UDJ Crocker, Dion, C/- Waimangoroa Post, via Westport 7650.
ZL3UDR Robb, D. W., 25 Elizabeth Street, Mt Eden, Auckland 1003.
ZL3UDZ Details unknown.
ZL3UE Prattley, R. H., Ellesmere Road, RD 2, Christchurch 8021.
ZL3UF Prue, B. O., 111 Union Street, New Brighton, Christchurch 8007.
ZL3UFM Chilton, N. J., 71 Charles Street, Rangiora 8254.
ZL3UFS Details unknown.
ZL3UGB Details unknown.
ZL3UGC Cook, G. J., 33 Normandy Street, Christchurch 8005.
ZL3UGH Details unknown.
ZL3UGT Turner, G., PO Box 11, Tai Tapu 8150.
ZL3UGY Briggs, R. D. (Mrs), 32 Firth Street, Cobden, Greymouth 7801.
ZL3UHF MED Listed Beacon.
ZL3UHI Details unknown.
ZL3UI Meredith, F. P. R., 6 Raymond Road, Bromley, Christchurch 8006.
ZL3UIM Watson, S. (Mrs), 59 Rountree Street, Christchurch 8004.
ZL3UKM Details unknown.
ZL3ULR Details unknown.
ZL3ULW Willum, Lem, 97 Morses Road, Waiau 8275.
ZL3UOK May, Stuart, 156 Pages Road, Timaru 8601.
ZL3UP McNicholl, M. W., 4 Corfe Street, Christchurch 8004.
ZL3UQT Taylor, Jeremy, 182 Stapletons Road, Christchurch 8001.
ZL3UR South Canterbury Branch, see Branch Directory.
ZL3URR de Roode, Hans, 255 Locksley Avenue, Christchurch 8006.
ZL3USA May, A. P., 30 Nikau Place, Timaru 8601.
ZL3UU Gordon, M., 3 Rydal Street, Christchurch 8002.
ZL3UUC Details unknown.
ZL3UUM Details unknown.
ZL3UX Vincent, L. L., Lismore, RD 5, Ashburton 8300.
ZL3UXB Details unknown.
ZL3UXT MacKley, G. D. J., PO Box 7279, Sydenham, Christchurch 8035.
ZL3UZ McKenzie, C. D., 17 Hulverstone Drive, Christchurch 8007.
ZL3VAA Orchard, A. P., 53a Joyce Crescent, Postal: PO Box 105, Greymouth 7815.
ZL3VAB Orchard, J. (Mrs), 53a Joyce Crescent, PO Box 223, Greymouth 7815.
ZL3VAH Blanchard, H. E. G. (Mrs), 37 Reynolds Avenue, Bishopdale, Christchurch 8005.
ZL3VAK Kennedy, Mark, 56 Domett Esplanade, Cobden, Greymouth 7801.
ZL3VAL Boote, V. Z. (Ms), 8 Hinton Road, Karoro, Greymouth 7801.
ZL3VAM Brook, P. C., C/- Waikuku Holiday Park, 1 Domain Terrace, Waikuku Beach 8254.
ZL3VAN Tapp, H. L. (Ms), 8 Kitchener Place, Opawa, Christchurch 8002.
ZL3VAP Petersen, V. A. (Mrs), 51 Derby Street, Westport 7601.
ZL3VAS Stephens, L. C. (Ms), 78 Brougham Street, Westport 7601.
ZL3VAT Axford, B. R., Omoto Valley Road, Greymouth 7801.
ZL3VC McLaughlin, P. T., 42 Domett Street, Westport 7601.
ZL3VF Kendall, J. D., 26 Pankhurst Drive, Woodend 8255.
ZL3VHF MED Listed Beacon.
ZL3VI Melhuish, B. J., 34 St Andrews Hill Road, Christchurch 8008.
ZL3VII Details unknown.
ZL3VIP McIsaac, Ivan, "The Shire", Powells Road, Oxford 8253.
ZL3VJP Paynter, J. J., 42 Fortune Street, Mairehau, Christchurch 8005.
ZL3VJX Milligan, T. J., 218 Condell Avenue, Bryndwr, Christchurch 8005.
ZL3VK Lawrence, J. E., 25 Andrew Street, Timaru 8601.
ZL3VL Uden, Elaine (Mrs), 396 Tangimoana Road, RD 9, Palmerston North 5321.
ZL3VLF Briggs, D. J., 226B Dowse Drive, Maungaraki, Wellington 6009.
ZL3VLN Neame, Lance, 13 Cowper Street, Greymouth 7801.
ZL3VM Details unknown.
ZL3VML Venter, Mark, 30 Manor Place, Christchurch 8005.
ZL3VN Bradley, J. N., 169 Weston Road, Christchurch 8005.
ZL3VNB Bateman, Nelson, 44 Jollies Pass Road, Hanmer Springs 8273.
ZL3VO Elder, J., 30 Maling Street, Christchurch 8006.
ZL3VP Bradshaw, Gareth, 163a Ashgrove Terrace, Christchurch 8002.
ZL3VQR Ramsay, Irene, 5 Mold Street, Middlemarch 9056.
ZL3VR McMaster, Anne, 23 Greens Road, RD 1, Kaiapoi 8252.
ZL3VS Uden, B. G., 396 Tangimoana Road, RD 9, Palmerston North 5321.
ZL3VTV Moore, T. D., 18 Geraldo Place, Russley, Christchurch 8004.
ZL3VV Christchurch West Amateur Radio Club, see Branch Directory.
ZL3VW Winskill, I. E., Caverhill, No 1 RD, Cheviot 8271.
ZL3VX Parry, R. I., 18 Sunvale Terrace, Christchurch 8002.
ZL3VY Dixon, A. P., 16 Kildare Terrace, Lincoln 8152.
ZL3VYL O'Malley, M. J. (Mrs), 72 Crofton Road, Christchurch 8005.
ZL3VZ Paterson, A. J., 52 Cavendish Road, Christchurch 8005.
ZL3WA Allen, R. W., 11 Cheam Street, Dallington, Christchurch 8006.
ZL3WBA Anderson, Brian. M., 191 West Belt, Rangiora 8254.
ZL3WBD Mead, B. D., 33 Fenchurch Street, Redwood, Christchurch 8005.
ZL3WC Reeves, N. J., James Street, RD 3, Hinds, Ashburton 8300.
ZL3WDB Manson, D B, 7 Brockenhurst Street, Christchurch 8007.
ZL3WE Longson, H. J. O., 21 Kinnaird Place, Christchurch 8002.
ZL3WEJ McIsaac, J. M., "The Shire", Powells Road, Oxford 8253.
ZL3WEM Manson, E M, 7 Brochenhurst Street, Wainoni, Christchurch 8007.
ZL3WFC Details unknown.
ZL3WG Baird, J. F., 46 Tovey Street, Christchurch 8007.
ZL3WGM MacDonald, Graeme, 11 Akaroa Street, Kaiapoi 8252.
ZL3WIM Details unknown.
ZL3WKT Allan, K. E. (Miss), Egans Road, RD 1, Rangiora 8254.
ZL3WL O'Connell, G. E., 31 Murray Street, Greymouth 7801.
ZL3WM Oliver, J. A., 44 Main Road, PO Box 22, Tai Tapu 8150.
ZL3WMD Dowle, W. M., Makura, Goose Bay, RD 2, Kaikoura 8280.
ZL3WMM Hay, G B, 37 Chapel Street, Greymouth 7801.
ZL3WNG Details unknown.
ZL3WNP Details unknown.
ZL3WO Welsh, L. D., 18 Woodlands Place, Christchurch 8007.
ZL3WP Buller High School Radio Club, 51 Derby Street, Westport 7601.
ZL3WPS Semmens, Warren, 30 Frederick Drive, Dinsdale, Hamilton 2001.
ZL3WPT McLaughlin, Kim, 42 Domett Street, Westport 7601.
ZL3WQ Mackey, C. J., 1 Camp Street, Ahaura 7850.
ZL3WR Martin, V. E., 51 Skerten Avenue, Hornby, Christchurch 8004.
ZL3WU Wright, A. F., 65 Ludstone Road, Kaikoura 8280.
ZL3WV Rigby, F., 81 Johns Road, Rangiora 8254.
ZL3WX Smillie, B., 19 Greenfield Place, Christchurch 8005.
ZL3WY Yeates, J. M. (Mrs), 69 St Andrews Hill Road, St Andrews Hill, Christchurch 8008.
ZL3ZZZ McDonald, D. M., Knights Road, RD 5, Christchurch 8021.

ZL4 CALL-SIGNS

ZL4AA Otago Branch NZART (Inc), see Branch Directory.
ZL4AAA Cooper, R. B., PO Box 330, Mangonui. 0557.
ZL4AAB Watson, J., 73 Forfar Street, Mosgiel 9007.
ZL4AAK Devereux, R. L., Daniels Road, Kingsdown, RD 1, Timaru 8621.
ZL4AB Gray, H. A., 102 Brownston Street, Wanaka 9192.
ZL4AC Lowe, A. F., 287 Barrow Street, Bluff 9503.
ZL4AD Cook, B. J., 24 Bayfield Road, Andersons Bay, Dunedin 9001.
ZL4AE Olsen, W. J., 21 Musselburgh Rise, Dunedin 9001.
ZL4AF Falconer, A. E., PO Box 214, Gore 9700.
ZL4AFM Appleby, R W, 17a Lynton Road, Bucklands Beach, Auckland 1006.
ZL4AG Boshier, R. F., 30 Ayton Drive, Glenfield, Auckland 1309.
ZL4AH Scudamore, E. G., "Fairview", Totness Street, Green Island, Dunedin 9006.
ZL4AI Details unknown.
ZL4AJ Details withheld by request of callholder.
ZL4AL Eastern Southland Branch 08, see Branch Directory.
ZL4AM Blair, J. G. H., 5 Merrie Creek Road, Clinton 9252.
ZL4AN Shaw, M. Y., c/- NZMCA, PO Box 72-147, Papakura 1730.
ZL4AO Allan, A. N., Charlton, No 4 RD, Gore 9700.
ZL4AP Smith, R. C., 104 Retreat Road, No 2 RD, Invercargill 9521.
ZL4AQ Whyte, R. A., 8 Margaret Street, Gore 9700.
ZL4AR Cole, R. S., 46 Walton Park Avenue, Fairfield, Dunedin 9006.
ZL4AS Gray, L. C., "Graylea", Stony Creek, RD 2, Balclutha 9200.
ZL4AT Taylor, A. J., 37 Dipton Street, Invercargill 9501.
ZL4AU Ernst, R. W., "Hollypine", Roslyn Bush Road, RD 2, Invercargill 9521.
ZL4AV Christie, G. A., 37 Garnet Street, Gore 9700.
ZL4AW Pickford, W. J., 29 Black Road, Otatara, 9 RD, Invercargill 9521.
ZL4AX Sandford, H. D., PO Box 12, Birchleigh Village, Mosgiel 9032.
ZL4AY McLeod, J. H., 23 Rickton Place, Rangiora 8254.
ZL4AZI Details unknown.
ZL4BA Jones, G. L., Address unknown.
ZL4BB Williamson, T. J., Yacht Capella, PO Box 25-111, St Heliers, Auckland 1130.
ZL4BD Helean, F. P., 3 Passmore Crescent, Maori Hill, Dunedin 9001.
ZL4BF Smith, L. K., 114b Te Hono Street, Maungatapu, Tauranga 3001.
ZL4BI Caldwell, J., 54 Brydone Street, Edendale, Invercargill 9690.
ZL4BJ Wickens, J. R., 9 Northfield Avenue, Opoho, Dunedin 9001.
ZL4BK Details unknown.
ZL4BM McCallum, R. H., Ashley Downs, RD, Clinton 9252.
ZL4BN Collett, D. K., 1/26 Kingsway Avenue, Sandringham, Auckland 1003.
ZL4BO Jackson, V. R., 514 Queens Drive, Invercargill 9501.
ZL4BS Aldridge, J. T., 87 Trevors Road, Ashburton 8300.
ZL4BU Stephens, R. D., 72 Wilfrid Street, Invercargill 9501.
ZL4BW Williamson, B. C., Melmore Terrace, Cromwell 9191.
ZL4BZ Eve, C. R., 181 Fairway Drive, Kamo, Whangarei 0101.
ZL4CA Williamson, A. E., Leicester Street, Hampden 8950.
ZL4CG Rackley, A. M., 36 Craig Hendry Street, Green Island, Dunedin 9006.
ZL4CI Stronach, N., 26 Lakefront Drive, Te Anau 9681.
ZL4CJ O'Cain, P. J., Flat 1, 234 Barrington Street, Spreydon, Christchurch 8002.
ZL4CJS Staynes, C. J., 2 Crewe Street, Mornington, Dunedin 9001.
ZL4CO Smith, J. D., PO Box 98, Alexandra 9181.
ZL4CP Shea, D. A., 3 Josephine Street, Greymouth 7801.
ZL4CT Southland Boys High School Radio Club, (Trustee: ZL4LX), 215 Herbert Street, Invercargill 9501.
ZL4CU Dudley, G. J., Pomona Road, RD 6, Invercargill 9521.
ZL4CV McKenzie, J., 104 Trafalgar Street, Waiwhetu, Lower Hutt 6009.
ZL4CVE Halford, J T, 25 Richmond Avenue, Nelson 7001.
ZL4CW Barker, W. G., 30 Kowhai Avenue, Invercargill 9501.
ZL4DB Browne, D. J., 133 Reservoir Road, Oamaru 8901.
ZL4DD Van Veen, H. M. G., 161 Evans Street, Opoho, Dunedin 9001.
ZL4DI Bain, C. R., 24 McKerrow Street, Waverley, Dunedin 9001.
ZL4DJ Baird, R. A., 87 Ventry Street, Alexandra 9181.
ZL4DK Mulder, D. J., 65 Perth Street, Mosgiel, Dunedin 9007.
ZL4DN Sharp, J. R., 72a Bay View Road, Dunedin South 9001.
ZL4DQ Maslen, I. A., 62 Chambers Street, Dunedin 9001.
ZL4DR Irving, J. T., 28 King Street, Mosgiel 9007.
ZL4DRB Bowie, D. R., 7 Middleton Road, Upper Riccarton, Christchurch 8004.
ZL4DV Richards, P. D., 18 Holyhead Street, Outram 9055.
ZL4DW Babington, A. M., 45 Thomson Street, Invercargill 9501.
ZL4DWW Wright, D. W., 309 Talbot Street, Invercargill 9501.
ZL4DX Brasell, C. R., Waimatua School, RD 11, Invercargill 9521.
ZL4DY Daniel, E. H., 4 Reddecliffe Crescent, Ashburton 8300.
ZL4DZ Willetts, N. E., 23 Yarmouth Street, Balclutha 9200.
ZL4FA Spittle, B. J., 727 Brighton Road, Ocean View, Dunedin 9051.
ZL4FC Dominey, R. J., 67 King Street, Timaru 8601.
ZL4FD Hedge, H. G., 35 Weiti Road, Orewa 1461.
ZL4FF Gillies, I. B., 7 Duncraig Street, Invercargill 9501.
ZL4FH Hall, J. N., 8 Watkin Street, Pine Hill, Dunedin 9001.
ZL4FI Askin, M. G., Moeraki, RD 2, Palmerston 9061.
ZL4FJ Austin, F. J., 8 Dunblane Street, Dunedin 9001.
ZL4FK Fisher, K. G., 7 Nepal Place, Christchurch 8005.
ZL4FM Wilden, A. J., 19 Mooltan Street, Dunedin 9001.
ZL4FOX Kindt, B., PO Box 7227, Wellesley Street, Auckland 1036.
ZL4FP McLeod, R. J., 134 Bay View Road, Dunedin 9001.
ZL4FR Jeromson, W. J., 196 Highcliff Road, Dunedin 9001.
ZL4FS Faulkner, D. N., 40 Wymer Terrace, Hamilton 2001.
ZL4FV Willoughby, J. R., 116 Regent Street, Invercargill 9501.
ZL4FZ Smart, R. G., 26 Olivine Street, Christchurch 8001.
ZL4GA Homer, G. C., 5 Conway Street, Macandrew Bay, Dunedin 9003.
ZL4GC Shand, T. J., 22a Gladstone Road North, Mosgiel 9007.
ZL4GD Wilkey, T. G., 68 Marine Parade, Bluff 9503.
ZL4GE Hurring, C. J., 1a Belmont Lane, Dunedin 9001.
ZL4GF Balan, S. C., 45a Brandon Road, Glen Eden, Auckland 1007.
ZL4GG Boddy, K. H., Address unknown.
ZL4GI Details unknown.
ZL4GJ Service, T. R., 5 Bremridge Place, Hamilton 2001.
ZL4GK Colvin, L. J., 43 Riverside Road, Gisborne 3801.
ZL4GL Gilder, N. J., 37 Pomona Street, Gore 9700.
ZL4GM Ellis, D. N., Address unknown.
ZL4GO Thomas, M. E., 27 Stirling Crescent, Mosgiel 9007.
ZL4GP McCutcheon, M. C., 145 Tarbert Street, Alexandra 9181.
ZL4GQ Southland Branch, see Branch Directory.
ZL4GSW Whyte, G. S., PO Box 36, Portobello 9004.
ZL4GT Skinner, L. C., 36 Daniels Road, Redwood, Christchurch 8005.
ZL4GU Brentwood, P. L., Slopehill Road, RD 1, Queenstown 9197.
ZL4GV Wilkey, D. G., 2/30 Simkin Avenue, Glen Innes, Auckland 1006.
ZL4GY Wills, M. E., 181 Wilton Street, Rosedale, Invercargill 9501.
ZL4HA Young, B. S., 9 Crescent Street, Purakanui, RD 1, Port Chalmers 9005.
ZL4HC Waters, M. J., 6 Barling Street, Macandrew Bay, Dunedin 9003.
ZL4HD Hardwick, T. R., 126 Barrow Street, Bluff 9503.
ZL4HF Kindon, H. A. R., 10 Treffers Avenue, Rangiora 8254.
ZL4HG McNeill, S. J. E., 44 Stanbury Avenue, Spreydon, Christchurch 8002.
ZL4HI Bruce, F., 22 Reynolds Drive, Glenview, Hamilton 2001.
ZL4HL Smirk, A. H. C., 76 Cannington Road, Maori Hill, Dunedin 9001.
ZL4HO Sutton, K. E., 97 Grey Street, Invercargill 9501.
ZL4HQ Williams, J. C., 143 Albert Street, Invercargill 9501.
ZL4HR Nisbet, G. J., 33 Sutcliffe Street, Dunedin 9001.
ZL4HS Marsh, W. J., Address unknown.
ZL4HT Powley, D. M. L., 22B Sea Vista Drive, Pukerua Bay, Wellington 6010.
ZL4HU Holdom, Ken A., PO Box 7, Clyde, Central Otago 9180 zl2hu@clear.net.nz.
ZL4HW Details unknown.
ZL4HY Baxter, P. M. (Mrs), 456 Peninsula Road, Kelvin Heights, Queenstown 9197.
ZL4IB Williams, R. F., C/- F. L. Williams, 12a Stuart Street, Levin 5500.
ZL4IC Cockeram, M. R., 126 Argyle - Otahuti Road, RD 4, Invercargill 9521.
ZL4IE Mason, J. A., 29 Cannington Road, Maori Hill, Dunedin 9001.
ZL4IEJ Details unknown.
ZL4IF Cameron, L. C., Corbett Road, RD 7, Ashburton 8300.
ZL4II Hollebon, K. W., Irvine Road, 2 RD, Dunedin 9021.
ZL4IJ Details withheld by request of callholder.
ZL4IK Emslie, C. R., 47 Barr Street, Dunedin 9001.
ZL4IM Norton, J., C/- Private Bag, Pukerau, Southland 9700.
ZL4IO Malkin, Melva, 4/412w Avenue Road, Hastings 4201.
ZL4IQ Knowles, D. C., 28 Rata Road, Twizel 8773.
ZL4IR Hartz, E. H., PO Box 9, Te Anau 9681.
ZL4IS Smirk, B. A., 68 Cannington Road, Maori Hill, Dunedin 9001.
ZL4IT Sawers, R. N., Address unknown.
ZL4IX Hasler, D. G., 10 Meon Street, Oamaru 8901.
ZL4IY Piercy, C. H., 11 Bamborough Street, Invercargill 9501.
ZL4IZ Jeffery, I. W., 7 Point Bush Road, Waimate 8791.
ZL4JA Birse, K. C., 14 Martbern Crescent, Christchurch 8005.
ZL4JB Details unknown.
ZL4JC McLennan, Elizabeth, PO Box 6394, Dunedin North 9030.
ZL4JD Dudley, J. T., 11 Fraser Street, Waikiwi, Invercargill 9501.
ZL4JF Balclutha Amateur Radio Club, see Branch Directory.
ZL4JG Gilchrist, Jeanne, 20 Saddleview Place, Fairfield, Dunedin 9006.
ZL4JJ Ferris, R. J., 269 Stokes Valley Road, Stokes Valley 6008.
ZL4JJC Details unknown.
ZL4JL Stewart, R. D., 4 Arawa Street, Gore 9700.
ZL4JN Haig, A. V., 43 Melbourne Street, Dunedin 9001.
ZL4JO Maley, G. K. (Mrs), Newhaven, RD 1, Owaka 9251.
ZL4JP McKenzie, G. A., Waiparu, No 7 RD, Gore 9700.
ZL4JQ Torrance, A. M., Address unknown.
ZL4JT Jennings, J. T., 15 Coolock Crescent, Dunedin 9001.
ZL4JU Middleton, C. H., Address unknown.

ZL4JW Watson, R. J., 646 Peninsula Road, Queenstown 9197.
ZL4KB Gearing, W. J., 16 Torquay Street, Green Island, Dunedin 9006.
ZL4KD Details unknown.
ZL4KF France, K. N., Arthurton, RD 1, Gore 9700.
ZL4KH Shine, D. H. J., 4 Tudor Lane, Mosgiel, Dunedin 9007.
ZL4KJ Robertson, D. C., 33 Coutts Road, Gore 9700.
ZL4KK Details unknown.
ZL4KM Craig, A. J., 71 Mackworth Street, Christchurch 8006.
ZL4KN Findlater, R B, 305 Conon Street, Invercargill 9501.
ZL4KO Williams, T. J., 8 Rob Roy Lane, Wanaka 9192.
ZL4KS Ross, L. A., 10 Roy Crescent, Concord, Dunedin 9006.
ZL4KT Waring, D., 28 Killarney Street, PO Box 118, Waitati 9060.
ZL4KU Taylor, S. J., 66 Royal Terrace, Alexandra 9181.
ZL4KV Patton, J. A., 15 Kensington Place, Taupo 2730.
ZL4KW Kibblewhite, K. C., PO Box 36, Arrowtown 9196.
ZL4KY Details unknown.
ZL4KZ Details unknown.
ZL4LDS Strong, L. D., 29 Church Street, Mosgiel, Dunedin 9007.
ZL4LE Evans, L. M., Tussock Creek, RD 6, Invercargill 9521.
ZL4LH Milsom, P. S., 103 Lakeview Terrace, RD, Lake Hawea 9192.
ZL4LJ MacKenzie, A. I., 24 Scotland Terrace, Green Island, Dunedin 9006.
ZL4LK Whitty, M. J., 29/2 Will Street, Abbotsford, Dunedin 9006.
ZL4LL Benson, J. A., 15 Heath Street, Andersons Bay, Dunedin 9001.
ZL4LN Tall, E. J., 1 Murray Street, Mosgiel 9007.
ZL4LO Bristow, H. E., 17 Glencarron Street, Alexandra 9181.
ZL4LS Howie, G. A., Address unknown.
ZL4LT Richards, F. B., 84 Onetaunga Road, Birkenhead, Auckland 1310.
ZL4LU Costard, T. J., 17 Stirling Street, Andersons Bay, Dunedin 9001.
ZL4LV Johnson, P. W., Saddle Hill Road, Fairfield, RD 1, Dunedin 9021.
ZL4LX Evans, R. W., 558 Tay Street, Invercargill 9501.
ZL4MA Ferguson, T. R., 22 Turnbull Street, Invercargill 9501.
ZL4MB Details withheld by request of callholder.
ZL4MD Hayes, K. J., Ripponvale, RD 2, Cromwell 9191.
ZL4MJ Mitchell, J. S., 109 Layard Street, Invercargill 9501.
ZL4MK Kingston, R. W. G., 12 Kenilworth Street, Waverley, Dunedin 9001.
ZL4ML Lamont, M. S., 3 Garden Place, Glenleith, Dunedin 9001.
ZL4MM Murray, R. W., 101 Inniscort Street, Cromwell 9191.
ZL4MO Askey, A. J., 30 Murano Street, Waverley, Dunedin 9001.
ZL4MP Crichton, J., 17a Edwin Street, Dunedin 9001.
ZL4MS Dalliessi, P. J., 127 Tuna Place, Onemana, RD, Whangamata 2982.
ZL4MT Matthews, R. H. (Mrs), Main Road, Mokutua, RD 1, Invercargill 9521.
ZL4MU Cook, R. K., 230 Crawford Street, Invercargill 9501.
ZL4MV Dawson, G. L., PO Box 1516, Invercargill 9515.
ZL4MW Ward, W. T. R., West Plains Road, RD 4, Invercargill 9521.
ZL4MX Govan, W. A., 14b Ravelston Street, Dunedin 9001.
ZL4MZ Sherlaw, W. G., 28 Soper Road, Wingatui 9007.
ZL4NA Dinkelaar, F., 48 Cranbrook Avenue, Christchurch 8005.
ZL4NAJ Johnston, N. A., 33 Matai Crescent, Timaru 8601.
ZL4NAK Details unknown.
ZL4NC Patterson, B. R., 66 Koremata Street, Green Island, Dunedin 9006.
ZL4ND Fox, Jack, 17 Inglis Street, Mosgiel 9007.
ZL4NF Fox, R., 26 Sarajevo Place, Massey, Auckland 1008.
ZL4NI Braddock, Rae, 39 Norton Street, Gore 9700.
ZL4NK Kan, N. C. Y., 90 North Road, North East Valley, Dunedin 9001.
ZL4NO Davidson, M., 7 Jack Street, Invercargill 9501.
ZL4NP Goodin, N. H., 325 Tomahawk Road, Dunedin 9001.
ZL4NQ Queenstown Branch 75 NZART, see Branch Directory.
ZL4NR McVie, K. R., 18 Grigor Street, Brockville, Dunedin 9001.
ZL4NS Hagen, R. L., 23 Milford Street, Invercargill 9501.
ZL4NU Mackay, A. J., "Glen Dendron", 9 RD, Oamaru 8921.
ZL4NV Selwyn, T. A., PO Box 654, Timaru 8615.
ZL4NW Lee, N. P. C., 51 Dome Street, Invercargill 9501.
ZL4NX Eteveneaux, D. H., 46 Greenock Street, Dunedin 9001.
ZL4NZ Reid, K. W., 41 Middlepark Road, Christchurch 8004.
ZL4OB Baird, O. L., 131 Nelson Street, Invercargill 9501.
ZL4OC Smith, R. F., 48 Oates Street, Roslyn, Dunedin 9001.
ZL4OD Parsons, R. D., 69 Oreti Street, Invercargill 9501.
ZL4OE Cumming, C. T., 100 Doon Street, Waverley, Dunedin 9001.
ZL4OI Sim, R. J., Gordon Road, RD 2, North Taieri, Mosgiel 9032.
ZL4OL McAlevey, M. J., PO Box 22, Waitati 9060.
ZL4OM McIver, P. D., 13 Albert Street, Springfield 8170.
ZL4ON Summerell, B. W., 457 Racecourse Road, Invercargill 9501.
ZL4OO Central Otago Branch, see Branch Directory.
ZL4OT Smith, L. H., 10 Rangiora Terrace, Tahuna, Nelson 7001.
ZL4OW Vincent, S. V., 30 Charles Street, Weston, Oamaru 8901.
ZL4OX Checketts, R. N., 21 Highfield Terrace, Invercargill 9501.
ZL4OZ Adams, D. A., 47 Wray Street, Dunedin 9001.
ZL4PB Details unknown.
ZL4PC Details unknown.
ZL4PD Neill, K. G., 38 Teignmouth Street, Green Island, Dunedin 9006.
ZL4PF Lindsay, M. G., PO Box 17-023, Karori, Wellington 6033.
ZL4PG Details unknown.
ZL4PJ Blair, P. J., 5 Merrie Creek Road, Clinton 9252.
ZL4PM Marsh, P., 33 Falcon Street, Kaikorai, Dunedin 9001.
ZL4PN Skeet, B. R., 123 Dunstan Road, RD 1, Alexandra 9181.
ZL4PO Price, L. J., 90 Malling Road, Redwood Valley, RD 1, Richmond 7031.
ZL4PP Cairns, J. G., 35 Royal Terrace, Alexandra 9181.
ZL4PQ Pryde, G. W., 20b Jellicoe Crescent, Dunedin 9001.
ZL4PT Thompson, K. P., 180 Mornington Road, Dunedin 9001.
ZL4PX McMillan, A. D. K., 22 Jameson Avenue, St Albans, Christchurch 8005.
ZL4PY Ball, G. L., PO Box 171, Dunedin 9015.
ZL4PZ Gilchrist, A. J. H., 20 Saddleview Place, Fairfield, Dunedin 9006.
ZL4QA Grieve, L. M., 178 Kennington - Waimatua Road, Kennington RD 1, Invercargill 9521.
ZL4QC Walton, A. D., 132 Martin Road, Fairfield, Dunedin 9006.
ZL4QD Hand, K. A., 45 Aotea Street, Dunedin 9001.
ZL4QE Pearce, B. H., 7 Cherry Drive, Mosgiel, Dunedin 9007.
ZL4QG Nilson, F. E. G., 19 District Road, Roseneath, Sawyers Bay, Dunedin 9008.
ZL4QH Adams, R. J., 4a Wharfe Street, Oamaru 8901.
ZL4QI McDiarmid, K. G., PO Box 131, Oamaru 8915.
ZL4QJ Burtenshaw, J. S., 69 Galloway Street, Hamilton 2001.
ZL4QK Cross, A., 5 Driver Street, Long Beach, RD 1, Port Chalmers 9005.
ZL4QL Smithies, R. B., 51 Wyn Street, Christchurch 8002.
ZL4QM McLaren, J. B., 8 Marlborough Crescent, Richmond, Nelson 7002.
ZL4QN Bonney, J. E., 17 Duncraig Street, Invercargill 9501.
ZL4QO Lawson, D., 30 McFadden Drive, Mosgiel, Dunedin 9007.
ZL4QQ Marshall, W. H., 39 Bellona Street, St Kilda, Dunedin 9001.
ZL4QS Lochhead, J. R., "The Balloon", RD 1, Kaitangata 9200.
ZL4QT Donoghue, A. M., PO Box 4215, Mid Avenue, Wanganui 5031.
ZL4QU Piper, R. V., Drysdale Road East, RD 2, Myross Bush, Invercargill 9521.
ZL4QY Details unknown.
ZL4RAE Rae, B. G., 25 Ettrick Street, Brockville, Dunedin 9001.
ZL4RB Naish, A. W., 45 Ardgowan Road, Oamaru 8901.
ZL4RC Wekking, J. H. J., 13 Hogan Place, Fairfield, Dunedin 9006.
ZL4RD Perrin, L. D., 69a Otipua Road, Timaru 8601.
ZL4RE Details unknown.
ZL4RF Osborne, H. F., 8 Conway Crescent, Invercargill 9501.
ZL4RG Details unknown.
ZL4RH McIntosh, R. W., 59 Hamilton Street, East Gore, Gore 9700.
ZL4RM Wijkstra, E., 28 White Street, Invercargill 9501.
ZL4RO Graham, J. D., 212 Broughton Street, Gore 9700.
ZL4RP Gillions, R. M., 7 Maryport Street, Lawrence 9153.
ZL4RQ Pycroft, B. E., 8 Orcades Street, Shirley, Christchurch 8001.
ZL4RR Moore, J. S. F., 11 Bernard Road, Alberttown, RD 2, Wanaka 9192.
ZL4RS Jonker, J. A., 5 Coles Street, Geraldine 8751.
ZL4RT Smith, D. J., 181 Milton Street, Nelson 7001.
ZL4RU Powe, R. L., PO Box 26, Palmerston 9061.
ZL4RV Tamplin, A. F. K., 58 Cooper Street, Karori, Wellington 6005.
ZL4RW Bailey, W. D., 35 Tyne Street, Roslyn, Dunedin 9001.
ZL4RX Details unknown.
ZL4RY Richardson, Joan, 87 Newcastle Street, Clyde 9180.
ZL4RZ Jardine, M. A., 153 Eden Street, Oamaru 8901.
ZL4SA Helm, P. D., 28 Stafford Street, Ranfurly 9071.
ZL4SB Stevenson, D. J., 593 Highcliff Road, Postal: PO Box 9008, St Clair, Dunedin 9030.
ZL4SC Rait, Marian, 31/f Signal Hill Road, Opoho, Dunedin 9001.
ZL4SD Excell, R. A., 144 Te Anau Terrace, PO Box 7, Te Anau 9681.
ZL4SE Brannigan, A. M., C/- 18 Holyhead Street, Outram 9055.
ZL4SEA Rolton, G. L., 59 Balmain Street, Halfway Bush, Dunedin 9001.
ZL4SF Watt, B. F., 91 Weston Road, Oamaru 8901.
ZL4SJ Bromley, I. J., 87 Manawatu Street, Palmerston North 5301.
ZL4SL Pope, K., 28b Gilbert Street, Blenheim 7301.
ZL4SM Finer, W. R., 7 Swanson Road, Henderson, Auckland 1008.
ZL4SN McLeod, N. C., 65 Stuart Street, Oamaru 8901.
ZL4SO Ellis, Kathy, 3 Hawera Road, Kohimarama, Auckland 1005.
ZL4SQ Leadley, A. M., 33 Tawarau Road, RD 1, Piopio 2555.
ZL4SR Fletcher, R. E., 19 Riverside Drive South, Lower Hutt 6009.
ZL4SS Jury, L. S., 24 Paeroa Road, RD 12, Levin 5500.
ZL4ST Beveridge, G. W., 83 Russell Street, Alexandra 9181.
ZL4SU Murrell, I. G., 65 King Street, Te Kuiti 2500.
ZL4SV Hayter, J. W., 22 Omapere Road, Kaikohe 0400.
ZL4TA Millar, G. E., 18a Arun Street, Oamaru 8901.
ZL4TAC Parish, D. A., 25 Truscott Avenue, Johnsonville, Wellington 6004.
ZL4TAD Details unknown.
ZL4TAE Thomas, T. M., 105 Larnach Road, Dunedin 9001.
ZL4TAF Bayliss, A., 13 Rata Drive, Otematata 8950.
ZL4TAI Calder, A. D., Fernhill, Ardgowan, RD 1D, Oamaru 8921.
ZL4TAJ Paterson, E. G., Waianiwa, RD 4, Invercargill 9521.
ZL4TAO A. W. Reynolds, 124 Dasher Road, 13 DRD, Oamaru 8901.
ZL4TAP Johnston, G. H. L., 230 Talbot Street, Invercargill 9501.

ZL4TAQ Howell, A. D., 18 Beverley Street, Merivale, Christchurch 8001.
ZL4TAR Kirkby, K. J., 5 Lesney Street, Maryhill, Dunedin 9001.
ZL4TAZ Wade, R. B., 8 Harbour Heights, Waverley, Dunedin 9001.
ZL4TBC Details unknown.
ZL4TBD Puklowski, N. A., 127 North Street, Ashhurst 5451.
ZL4TBE Details unknown.
ZL4TBN Nelson, D. A., 24 Jensen Street, Green Island, Dunedin 9006.
ZL4TBO Stewart, E. A., Main Road, Kuri Bush, Brighton 9051.
ZL4TBR Cleaver, R. A. J., 53 Till Street, Oamaru 8901.
ZL4TCA Griffith, I. W., 17 Gilmore Street, Dunedin 9001.
ZL4TCB Walker, B. A., Goodwood Road, RD 1, Palmerston 9061.
ZL4TCC Le Quesne, P. W. H., 23 Oriel Place, Pirimai, Napier 4001.
ZL4TCD Todd, R. J., 30 Naumai Street, Gore 9700.
ZL4TCF Norgrove, T. J., 9 Dakota Place, Waldronville, Dunedin 9006.
ZL4TCN Holley, J. A. C., 44 Scotland Street, Roxburgh 9156.
ZL4TCO Mooney, W. J., 21 Greenhill Avenue, Dunedin 9001.
ZL4TCS Falconer, E. F., PO Box 214, Gore 9700.
ZL4TCV Nixon, D. B., 89 Quebec Street, Mornington, Wellington 6002.
ZL4TDB Wilden, J. H., 46 Hocken Street, Dunedin 9001.
ZL4TDE Gallagher, P. R., 112 John Sims Drive, Johnsonville, Wellington 6004.
ZL4TDF Walker, J. D., 7 Meon Street, Oamaru 8901.
ZL4TDG Details unknown.
ZL4TDI Bowen, P. D. O., 207 Taieri Road, Dunedin 9001.
ZL4TDJ Dingwall, A. B., 47 Gilkison Street, Dunedin 9001.
ZL4TDK Dwyer, W. A., 21 Summertime Avenue, Dunedin 9001.
ZL4TDM McKeown, D. W., 61 Eden Street, Oamaru 8901.
ZL4TDP Aronsen, P. G., 10 Girvan Street, Wallacetown, Invercargill 9502.
ZL4TDQ Davidson, R. W., 48 Montrose Street, Invercargill 9501.
ZL4TDR Zoest, A. R., 25 Jaunpur Crescent, Broadmeadows, Wellington 6004.
ZL4TDS King, W. A., PO Box 30, Roxburgh 9156.
ZL4TDT Johnson, W. A., 10/254 Main Street, Gore 9700.
ZL4TDU Lynn, I. G., 26 Larkins Street, Dunedin 9001.
ZL4TFD Ball, D. R., 2c Towey Street, Oamaru 8901.
ZL4TFF Bokser, D. L., 216 North Road, North East Valley, Dunedin 9001.
ZL4TFG Neill, P. G., 38 Teignmouth Street, Green Island, Dunedin 9006.
ZL4TFH Allen, M. F., 6 Croydon Street, Dunedin 9001.
ZL4TFJ Shirreffs, C. S., 145 Scandrett Street, Invercargill 9501.
ZL4TFL Collier, J. B., 86 Mailer Street, Mornington, Dunedin 9001.
ZL4TFM Details unknown.
ZL4TFP Bedford, W. M., C/- Milburn Gardens, RD 2, Milton 9250.
ZL4TFR Waters, J. L., PO Box 11, Kingston, Southland 9660.
ZL4TFV Calder, D. G., 13 Elgin Rise, PO Box 113, Winton 9662.
ZL4TFW Gamble, A. A., 13c Seaview Road, Cable Bay, RD 1, Kaitaia 0500.
ZL4TFY Craighead, G., 162 Balmacewen Road, Dunedin 9001.
ZL4TGA Scott, P. R., 99 Gilkison Street, Dunedin 9001.
ZL4TGB Grant, W. A., PO Box 375, Dunedin 9015.
ZL4TGF Williams, G. B., 64 Forfar Crescent, Invercargill 9501.
ZL4TGH Connolly, R. C., PO Box 1229, Dunedin 9015.
ZL4TGJ Pettigrew, A. D., 89 Ward Street, Invercargill 9501.
ZL4TGM Black, W. A., Address unknown.
ZL4TGP Watson, R. M., 21 Arcus Street, Whangarei 0101.
ZL4TGR Watson, D. K., 114 Cannington Road, Maori Hill, Dunedin 9001.
ZL4TGT Gerrie, A. L., 56 Oakwood Avenue, Dunedin 9001.
ZL4TGW Details unknown.
ZL4TGY Parris, R. C., 57 Rata Drive, Otematata 8950.
ZL4TH Larsen, S. N., 26 Columba Avenue, Dunedin 9001.
ZL4THC Andrews, J. W. A., 94 Carnarvon Court, Invercargill 9501.
ZL4THE Booth, A. W., 23 Golden Bay Road, Sewart Island 9530.
ZL4THF Burge, G. G., 34 Colmar Road, Howick, Auckland 1704.
ZL4THG McAuliffe, K. J., 184 Morton Street, Invercargill 9501.
ZL4THJ Rabbidge, M. J., "Crayburn Farm", Graham Road, RD 1, Tokanui 9671.
ZL4THK Sinclair, D. H., 8 Argyle Street, Weston, Oamaru 8901.
ZL4THL Davidson, R. J., Earnscleugh Road, PO Box 6, Clyde 9180.
ZL4THN Details unknown.
ZL4THP Da-Rin, K. J. V., 11 Ronay Street, Bradford, Dunedin 9001.
ZL4THQ Crimp, G. R., 31 Davies Road, New Plymouth 4601.
ZL4THT Blee, A. R., 7 Campbell Street, Alexandra 9181.
ZL4THZ McLean, C. J., Longbush, RD 1, Invercargill 9521.
ZL4TIA Larsen, C. M. (Ms), 26 Columba Avenue, Dunedin 9001.
ZL4TIB Wallace, W. D., 17 Delphic Street, Sawyers Bay, Dunedin 9008.
ZL4TIC Stewart, C. H., 29 Paisley Place, Invercargill 9501.
ZL4TID McRae, G. F., 1 Hillcrest Avenue, Mataura, Invercargill 9690.
ZL4TIE Barber, B. J., "Glencoe", RD 2, Invercargill 9521.
ZL4TIG Hill, A. R. M., 16 Wyre Street, Kaitangata 9200.
ZL4TII Peirson, W. E., 16 Gardiners Road, Bishopdale, Christchurch 8005.
ZL4TIK Curline, A. J., 16 Derby Street, Green Island, Dunedin 9006.
ZL4TIL Drage, I. J., 695 North Road, Invercargill 9501.
ZL4TIM Watson, N. R., 59 Rountree Street, Christchurch 8004.
ZL4TIO Moore, J. S., 10 Dalrymple Street, Pine Hill, Dunedin 9001.
ZL4TIR Woodrow, P. J., PO Box 75, Stirling, Balclutha 9200.
ZL4TIY Larooy, G. M., 617 York Street, Hastings 4201.
ZL4TJA Details unknown.
ZL4TJD Details unknown.
ZL4TJH Balch, R. M., 23 Connell Street, Dunedin 9001.
ZL4TJP Askin, Fay, Moeraki, RD 2, Palmerston 9061.
ZL4TJS Holland, B. J., C/- Police Station, 32 Princes Street, Waikari 8276.
ZL4TJT Holland, J. P., 3 Okiwa Place, Tirimoana, RD 1, Picton 7372.
ZL4TJX Nicholls, M. A., 9 Werneth Street, Atawhai, Nelson 7001.
ZL4TKD Dupont, C. C., 6 Lothian Crescent, Invercargill 9501.
ZL4TKK Spence, R. W., Address unknown.
ZL4TKN Details unknown.
ZL4TKQ Tamplin, N. L. A., 58 Cooper Street, Karori, Wellington 6005.
ZL4TKS Mason, E. C., 49 John Street, Ranfurly 9071.
ZL4TLE Elliott, L. G., 36a Murano Street, Dunedin 9001.
ZL4TLG McConechy, G. S., 71 Heywood Street, Invercargill 9501.
ZL4TLH McDonald, A. H., 190 Morton Street, Invercargill 9501.
ZL4TLL Blair, R. C. W., Taumata, RD, Clinton 9252.
ZL4TLX Wark, W. J., 3 Dunrobin Street, Dunedin 9001.
ZL4TM Duffy, W. J., PO Box 6025, Invercargill North 9530.
ZL4TNT Details unknown.
ZL4TO Mann, I. A., 72 Greig Street, Broad Bay, Dunedin 9004.
ZL4TP Garry, A. M., 4 Tilburn Street, Halfway Bush, Dunedin 9001.
ZL4TPD Dennison, W. P., 301 Ythan Street, Invercargill 9501.
ZL4TPJ Details unknown.
ZL4TR Armstrong, E. W., 15 London Street, Weston, Oamaru 8901.
ZL4TRE Eade, Russell, 27 Graham Street, Mosgiel 9007.
ZL4TRM McLennan, R. N., PO Box 6394, Dunedin North 9030.
ZL4TRS Details unknown.
ZL4TRW Details unknown.
ZL4TS Details unknown.
ZL4TSB Details unknown.
ZL4TSM Details unknown.
ZL4TSR Details unknown.
ZL4TT Carter, F. L., 4 Roach Street, Oamaru 8901.
ZL4TUC Details unknown.
ZL4TUD McConnachie, N. E., 184 Main South Road, Green Island, PO Box 13-146, Green Island 9030.
ZL4TV Adamson, A. T., 311 Pine Hill Road, Liberton, Dunedin 9001.
ZL4TWO Clarkson, D. J., 22 Jackson Street, Dunedin 9001.
ZL4TX Stuart, B. E., 353 Highcliff Road, Dunedin 9001.
ZL4UCZ Middlemiss, B. W., 112 Margaret Street, Invercargill 9501.
ZL4UDM Details unknown.
ZL4UHF Aldridge, S. J., 201 Dalziel Road, Dunedin 9001.
ZL4UPB Details unknown.
ZL4US Lambert, M. G., 38 Ayr Street, Mosgiel 9007.
ZL4VAB Wilden, R. M. (Mrs), 46 Hocken Street, Kenmure, Dunedin 9001.
ZL4VAC Bootsma, D., 17 Chelmer Street, Oamaru 8901.
ZL4VAD Meikle, J. W., 15 Girvan Street, Oamaru 8901.
ZL4VAP Popham, A. D., 47 Kelso Crescent, Invercargill 9501.
ZL4VAQ Needham, J. W., 232 Spey Street, Invercargill 9501.
ZL4VBB Robinson, J. P., PO Box 127, Alexandra 9181.
ZL4VBI Phillips, B, 95 Manapouri Street, Ravensbourne, Dunedin 9002.
ZL4VBM McMillan, B. A., 230 Kenmure Road, Dunedin 9001.
ZL4VCR Simpson, R. K., 1018 Brighton Road, Brighton 9051.
ZL4VCS Stephen, C. D., C/- 45 Ventry Street, Alexandra 9181.
ZL4VDF Findlater, D. N., 41 Montague Street, Dunedin 9001.
ZL4VDM Miller, D. R., 34 Herron Street, Brockville, Dunedin 9001.
ZL4VEH Hunt, E. J., 691 Portobello Road, Broad Bay, Dunedin 9004.
ZL4VGA Anderson, R. G., 121 Elgin Road, Mornington, Dunedin 9001.
ZL4VGV Seidelin, Rex, 45 Elgin Road, Dunedin 9001.
ZL4VHF MED Listed Beacon.
ZL4VHI MED Listed Beacon.
ZL4VJS Shand, J. C., 344 Rockdale Road, Invercargill 9501.
ZL4VK Details unknown.
ZL4VM Marris, V. T., 7 Meridian Street, Port Chalmers, Dunedin 9005.
ZL4VOW Watson, Owen, 103 Braeview Crescent, Maori Hill, Dunedin 9001.
ZL4VPM Mortimer, V. P., 31b Weaver Street, Oamaru 8901.
ZL4VT Eigensperger, E., C/- PO Box 1231, Rotorua 3215.
ZL4VV Kempson, C. M., 399b Te Moana Road, Waikanae 6454.
ZL4VWB Beyer, W. F. T., 132 Eden Street, Oamaru 8901.
ZL4WA Scott, J. R., Cochranes Road, RD 7, Ashburton 8300.
ZL4WAH Watson, Anne, 114 Cannington Road, Dunedin 9001.
ZL4WAQ Jaquiery, S. G., 56 Royal Terrace, Dunedin 9001.
ZL4WAT Details unknown.
ZL4WCP Wishart, I. D., 32 Hamilton Road, Queenstown 9197.
ZL4WDF Details unknown.
ZL4WEK Krol, E., 23 Franklin Street, Dunedin 9001.
ZL4WES Details unknown.
ZL4WFA Details unknown.
ZL4WJ Busby, Wendy, 25 Ettrick Street, Brockville, Dunedin 9001.
ZL4WRC Clark, R. W., 5 Lethaby Street, Abbotsford, Dunedin 9006.
ZL4WW O'Brien, H. C. (W6YJG), 15125 Juniper Peak Road, Weed, CA 96094-968, USA.

SOUTH PACIFIC AMATEUR RADIO LISTINGS

Cook Islands

ZK1AD Dean, Aporo, Arorangi, Rarotonga.
ZK1AH Hosking, Archer Snr, Nikao, Rarotonga.
ZK1AN Davis, Sir Thomas, Ngatangtia, Rarotonga.
ZK1AQ Malcolm, Roger, PO Box 7, Areora, Atiu Island.
ZK1AX Abbott, John E., PO Box 663, Rarotonga.
ZK1BK Allan, Norman, Titikaveka, Rarotonga.
ZK1BP Savage, Henry, Takuvaine, Rarotonga.
ZK1BS Cook Island Boy Scouts, PO Box 491, Rarotonga.
ZK1BW Walters, Barry, PO Box 702, Rarotonga.
ZK1CG Rivera, Victor, PO Box 618, Black Rock, Rarotonga.
ZK1CP Utanga, Anthony, PO Box 581, Rarotonga.
ZK1CY Tupou, Tuatai, PO Box 768, Matavera, Rarotonga.
ZK1DD Clarke, Des, Aitutaki Island, South Cook Islands.
ZK1DG Goodger, James, C/- John Abbotts.
ZK1JD Ditchburn, Jim, PO Box 491, Rarotonga.
ZK1KH Holdom, Ken, C/- ZL4HU, P O Box 7, Clyde, Central Otago 9180, New Zealand, zl2hu@clear.net.nz.
ZK1MA Tupou, Tuatai, PO Box 768, Tauhunu, Manihiki Island.
ZK1TW Wichman, Tomoavao, PO Box 129, Rarotonga.
ZK1WL Latham, Warwick, Omoka, Penrhyn Island.
ZL1USA Rivera, Victor, PO Box 618, Rarotonga.

Fiji

3D2AA Aisake, A., PO Box 4969, Lautoka, Fiji.
3D2AG de Ramon, A., PO Box 14-633, Suva.
3D2BA Best, H. J., PO Box 698, Sigatoka.
3D2CC Carter, T. F., Muscat Cove Resort.
3D2CM Northcott, R. L., PO Box 1168, Suva.
3D2CS Broadbridge, E. K., PO Box 1046, Suva.
3D2DG Goodger, James, PO Box 11-407, Suva.
3D2DI Smith, W. J., PO Box 184, Suva.
3D2DN Lucas, David, PO Box 283, Pacific Harbour.
3D2ER Singh, Raj, PO Box 184, Suva.
3D2ES Saphore, Edward, PO Box 12-758, Suva.
3D2HN Tikaram, Harry Narayan, PO Box 3210, Lami.
3D2JO Turaganivalu, J., 14 Alexander Street, Suva.
3D2KM MacKinnon, K., C/- FSC, PO Box 63, Lautoka.
3D2LD Damuni, Savenca, PO Box 90, Suva.
3D2MP Prakash, M., PO Box 5324, Raiwaqa.
3D2PS Schulz, A. F. P., PO Box 5372, Raiwaqa.
3D2QB Osterman, Allan, PO Box 736, Lautoka.
3D2SJ Dives, Steve, PO Box 1354, Suva.
3D2SS First Suva Scout Group, PO Box 2344, Government Buildings, Suva.
3D2TC Thompson, Craig, PO Box 273, Suva.
3D2UR USP Amateur Radio Club, PO Box 1168, Suva.
3D2YL Blisard, Karen S., PO Box 2474, Suva.

New Caledonia

FK1RF Chardola, Jean-Claude, Box 3111, 98846, Noumea.
FK1RO Szymanski, Pascal, Box 11-451, 98802, Noumea.
FK1RS Gallois, Jean-Pierre, 7 rue Calimbre, 98800, Noumea.
FK1RU Mignot, Jean-Pierre, Box 90, 98870, Bourail.
FK1SF Limousin, Claude, Box 3047, 98846, Noumea.
FK1SG Forzy, Michael, Box 2793, 98846, Noumea.
FK1SO Lehoux, Gerard, 22 Lot Leroux, 98810, Mont Dore.
FK1TK Rainer, Henri, 190 rue Boutmy, Box 4608, 98847, Noumea.
FK1TV Flotat, Leon, Box 3690, 98846, Noumea.
FK1UB Morignat, Claude, 64 Route Anse-Vata, 98800, Noumea.
FK1UC Cherrier, Yves, 86 Rue Durmont-Durville, 98830, Auteuil.
FK1UL Jauneau, Jean-Claude, Box 2100, Pont des Francais, 98810, Mont Dore.
FK1UM Janisel, Robert, Box 917, 98830, Koutio.
FK1UW Tardivel, Gouvlen, Box 1529, 98845, Noumea.
FK8AH Garbe, Robert, Box 4490, 98847, Noumea.
FK8AL Garbe, Jean, Box 3994, 98846, Noumea.
FK8BG Cullell, Gilbert, 6 bis rue Charbonneaux, 98800, Noumea.
FK8BN Thiriet, Guy, Box 1491, 98845, Noumea.
FK8BR Ynet-Mine, Maurice, 98825, Pouembout.
FK8CA Gouillard, Alain, Box 238, 98840, Tontouta.
FK8CC Deramane, Simon, Box 7514, 98801, Noumea.
FK8CP Touzard, Remi, Box 945, 98845, Noumea.
FK8CR Szymanski, Eddy, QSL to F6EWK.
FK8DD Torope, Samuel, Box 3040, 98846, Noumea.
FK8DI Rabu, Dominique, 5 rue C. Savoie, 98800, Noumea.
FK8DJ Kryger, Jean-Claude, 21 rue Charbonneau, 98800, Noumea.
FK8DK Florentin, Maurice, 24 rue Jules Verne, 98800, Noumea.
FK8DL Roussel, Jean-Claude, Box 8585, 98807, Noumea.
FK8DM Thouvay, Gilles, Box 2016, 98846, Noumea.
FK8DS Grilhault des Fontaines, Gabriel, Box 1197, 98845, Noumea.
FK8DX Marc, Joel, 38 rue de Verdun, 98800, Noumea.
FK8EB Pesnel, Henri, Box 9754, 98807, Noumea.
FK8EF Martin, Arsene, Box 3519, 98846, Noumea.
FK8EG Rozier, Jean, Box 71, 98840, Tontouta.
FK8EJ Lung Kong, Bernard, Box 672, 98845, Noumea.
FK8EM Wagner, Pierre, Box 3956, 98846, Noumea.
FK8ET Dufermon, Jean-Michel, Box 3859, 98846, Noumea.
FK8EV Juncas, Jacques, Internat, 98860, Kone.
FK8EW Leperlier, Karl, 6 rue du Collier Blanc, 98800, Noumea.
FK8EX Lesaulnier, Rene, 131 route de l'Anse Vata, 98800, Noumea.
FK8EY D'Hollande, Eugene, Box 2233, 98846, Noumea.
FK8FA Tuband, Aimee, Box 447, 98810, Mont Dore.
FK8FB Debien, Lionel, Box 428, 98845, Noumea.
FK8FC Tourette, Michel, Box 2309, 98846, Noumea.
FK8FG Lepelletier, Bernard, Box 6258, 98806, Noumea.
FK8FI Nagle, Alain, QSL to F6FNU.
FK8FK Torregrosa, Jean-Philippe, Box 8485, 98807, Noumea.
FK8FL Gazengel, Albert, Box 4561, 98847, Noumea.
FK8FO Chanaron, Jean-Paul, Box 7133, 98801, Noumea.
FK8FP Lesca, Pierre, Box A 2, 98848, Noumea.
FK8FR Nixon, John, Box 2319, 98846, Noumea.
FK8FS Todori, Georges, 47 rue du Dr. Drayton, 98800, Riviere Salee.
FK8FT Bertolino, Henri, Box 135, 98890, Paita.
FK8FU Montaigne, Daniel, QSL to NA5U.
FK8FX Mercier, Yvon, 16 rue Gal Sarrail, 98800, Noumea.
FK8FZ Blanchet, Yves, Box 11490, 98802, Noumea.
FK8GB Soares, Antonio, Box 3125, 98846, Noumea.
FK8GC Berniere, Charles, 16 rue Felix Broche, 98800, Noumea.
FK8GF Millot, Alexandre, Box 3977, 98846, Noumea.
FK8GG Ambrogi, Francois, Box 344, 98845, Noumea.
FK8GH Lebiez, Jean-Louis, Box 1094, 98845, Noumea.
FK8GI Lebiez, Francoise, Box 1094, 98845, Noumea.
FK8GJ Bourez, Marc, QSL to F6CXJ.
FK8GK Dumon, Patrice, Box 1468, 98845, Noumea.
FK8GL Delaveuve, Michel, Box 703, 98845, Noumea.
FK8GM Esposito, Eric, Box 4480, or via WB2RAJ, 98847, Noumea.
FK8GN Allegret, Alain, Box 133, 98850, Koumac.
FK8GO Kherzi, Michel, Box 447, 98810, Mount Dore.
FK8GT Debien, Philippe, Box 8340, 98807, Noumea SUD.
FK8GU Marrades, Jacques, Box 3528, 98846, Noumea.
FK8GV Delmas, Jean-Marie, Box 3818, 98846, Noumea.
FK8GW Enrico, James, Box 6008, 98806, Riviere Salee.
FK8GX Mahault, Michel, Box 955, 98870, Bourail.
FK8GY Bouleau, Joel, Box 7219, 98801, Noumea.
FK8GZ Gaveau, Emile, Box 2005, 98846, Noumea.
FK8HA Lefebvre, Patrice, Box 74, 98830, Dumbea.
FK8HC Petitjean, Franck, Box 7636, 98801, Noumea.
FK8HD Torregrossa, Marlyse, Box 8454, 98807, Noumea.
FK8HF Pebellier, Michel, 12 bis Rue Bureau V D C, 98800, Noumea.
FK8HG Tual, Robert, Box 9053, 98807, Noumea.
FK8HH Roussel, Odile, Box 8585, 98807, Noumea.
FK8HM Pesque, Eric, 20 rue de la Riviera, Pointe aux longs cous, 98800, Noumea.
FK8HN Lavisse, Didier, Box 12, 98842, Noumea.
FK8HP Hertzog, Pascal, Box 343, 98880, La Foa.
FK8HS Rieux, Christine, Box 3956, 98846, Noumea.
FK8HV Faidherbe, Alexandre, Box 4230, 98847, Noumea.
FK8HW Poitvin, Thibault, Box 170, 98829, Thio.
FK8HZ Bunel, Maurice, Box 9, 98846, We Lifou.
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FK8KBS A.R.A.N.C. BBS, Box 3956, 98846, Noumea.
FK8KRU A.R.A.N.C., Box 3956, 98846, Noumea.
FK8PCT ATRASEC, Box 2793, 98846, Noumea.
FK8VHT Leclerc, Philippe, via F6AJA.
FK8VHY Prevostat, Dany, Via F5CW.
FK8ZHA Repeater, Box 3956, 98846, Noumea.

Pitcairn Island

(No update for 2002)
VP6AA Evans, Dave
VP6AZ Warren, Michael
VP6BK Mizoguchi, Kan
VP6BR Heikinheimo, Jukka I.
VP6BX Young, Brian
VP6CB C. Brown, Clarice
VP6CW Calvo, Jacques
VP6DB Brown, David C.
VP6DR Christian, Dennis
VP6DS Warren, Darralyn
VP6ID Christian, Irma
VP6JC Warren, Jay
VP6KB Brown, Kay
VP6KY Young, Kari
VP6LW Warren, Lorraine
VP6MW Warren, Merlada
VP6PL Warren, Paul
VP6QT Campbell, Scott
VP6SC Christian, Shawn

VP6TA Christian, Trent
VP6TC Christian, Tom
VP6TY Young, Terry
VP6WH Haigh, Bill
VP6YL Christian, Betty

Vanuatu

YJ8AA Palmer, Frank, PO Box 6, Port Vila.
YJ8AB Scantlin, Jack, PO Box 10, Port Vila.
YJ8BC Carlson, Benjamin, C/- PO Box 174, Port Vila.
YJ8CF Francis, Craig, Ranwadi, Pentecost Island.
YJ8DA Raburn, Leonard, White-Sands, Tanna Island.
YJ8DE Discombe, Reece, PO Box 56, Port Vila.
YJ8DM MacDonnel, Robert, PO Box 1217, Port Vila.
YJ8DX Vanuatu Amateur Radio Society, PO Box 50, Port Vila.
YJ8DZ Toepfer, Darryl, PO Box 148, Port Vila.
YJ8EC Carlson, Elizabeth, C/- PO Box 174, Port Vila.
YJ8GC Carlson, Greg, C/- PO Box 174, Port Vila.
YJ8GP Pearl, Simon G., PO Box 92, Port Vila.
YJ8JA Green, Colin, PO Box 740, Port Vila.
YJ8KM Takeda, Ichiro, PO Box 151, Port Vila.
YJ8MC Mariello, Michel C., PO Box 731, Port Vila.
YJ8MN Nada, Mashiro, PMB 9005, Port Vila.
YJ8NAC Scantlin, Mod, PO Box 10, Port Vila.
YJ8NJW Watson, Esther, PO Box 683, Port Vila.
YJ8NKB Barlow, A. Keith, PO Box 730, Port Vila.
YJ8NPB Bianchessi, Pietro, PO Box 162, Lnganville.
YJ8NRM MacDonald, Roy, PO Box 535, Port Vila.
YJ8NVN Kono, Nobuyuki, PMB 068, Port Vila.
YJ8OK Watson, Tex L., PO Box 683, Port Vila.
YJ8PE Poulet, Achille E., PO Box 399, Port Vila.
YJ8PR Sparre, Rebecca, PO Box 277, Lnganville.
YJ8RK Kersley, Rex, PO Box 1361, Port Vila.
YJ8RN Newell, Rod S., PO Box 905, Port Vila.
YJ8RS Sparre, Ray, PO Box 277, Lnganville.
YJ8UU Twadell, Stuart, PMB 068, Port Vila.
YJ8YS Sato, Yakuta, PO Box 19, Santo.
YJ8ZB Skane, B. J., PO Box 740, Port Vila.
YJ8ZD Raburn, Brenda, White-Sands, Tanna Island.

NEW ZEALAND DEPENDENCIES—ZL5, Z.6, ZL7, ZL8, ZL9, ZLØ

ZL5 Antarctica

ZL6 NZART

ZL6A New Zealand Association of Radio Transmitters (Inc.), PO Box 40-525, Upper Hutt 6415.
ZL6HAM Details unknown
ZL6IW Details unknown
ZL6KCM Kapiti Coast Museum, 9 Elizabeth Street, Waikanae 6010.
ZL6OTC New Zealand Old Timers Club (ZL), C/- P. C. Anderson, 32 Gilmour Street, Waihi 2981.
ZL6QH Quartz Hill Amateur Radio Station, C/- Wellington Amateur Radio Club Inc., PO Box 6464, Marion Square, Wellington 6030.
ZL6YL NZ Women Amateur Radio Operators, Trustee: Jill O'Donnell ZL2DBO, 39 Lismore Street, New Plymouth 4601.

ZL7 Chatham Islands

ZL7NAA Tuanui, J. (Mrs), PO Box 154, Waitangi, Chatham Islands 8030.

ZL8 Kermadec Islands

ZL9 Auckland and Campbell Islands

ZLØ Overseas Visitors

NON-TRANSMITTING MEMBERS

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Binsted, W. J., P.O. Box 79, Matakana 1240.
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Herd, C. G., 17 Haunui Road, Pukerua Bay 6010.
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Johnson, M. E., 15 Field Street, Upper Hutt 6007.
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Lucas, W., C/- 23 Budge Street, Blenheim 7301.
MacLean, C R, 54 Western Road, Tauranga 3001.
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McConnel, S. J. (Mrs), 66 Khandallah Road, Khandallah, Wellington 6004.
McDougall, D. S., W9IV, C/- J. D. Wightman, 99c Eighth Avenue, Tauranga 3001.
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Midwinter, G. G., 473 Ruahine Street, Palmerston North 5301.
Park, R. A., ZL2259, PO Box 30-152, Lower Hutt 6315.
Park, S. C., HL2ANR, 81a Langdons Road, Papanui, Christchurch 8005.
Parsons, C., 44 Yearsley Place, Manurewa, Auckland 1702.
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Pye, E., ZL2163, 63 Thackeray Street, Upper Hutt 6007.
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Stewart, P. D., 12 Benmore Street, Timaru 8601.
Strachan, J. W., 47 Morgans Road, Glenwood, Timaru 8601.
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Walker, M, 26 Devon Crescent, Bulls 5452.
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Wiggins, F. G., ZL1306, 12 Windsor Street, Tokoroa 2392.
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OVERSEAS MEMBERS

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Cadney, S C, G0LUZ, The Meadow Mattishall Road, Garveston, Norfolk.
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Iza, J., EA2SN, A Gasteiz 48-7, E-01008, Vitoria-Gasteiz.
Jones, D. L., VK4VU, 15 Wallaby Street, Toombul, Queensland 4012.
Keigo Komuru, JA1KAB, 1-6-13 Kokubunji-Dai, Ebina, Kanagawa Pref.
Kjartansson, V. T., TF3DX, Silungakvisl 10, IS-110 Reykjavik.
Louttit, L. W., VK2BE, 17 Thompson Street, Earlwood, NSW 2206.
Mawhinney, P. E., VK2AFW, P.O. Box 786, Strathfield, NSW 2135.
Maxwell, J. A., W6CF, P.O. Box 473, Redwood Estates, CA 95044.
McDougall, D. S., W9IV, 25 Pine Forest Road, Haines City, Florida 33844.
McKeown, S. W., N6GUX, 780 Sheraton Drive, Williams, Oregon.
Milne, R. C., VK7ZAL, 11 Clifford Street, Moonah 7009, Tasmania.
Milne, T. G., G4CMG, Lynwood Clovelly Road, Hindhead, Surry GU26 6RP.
Mutton, J O, W7JUA, P O Box 5950, Pahrump, N V 89041.
Naish, P., VK2BPN, 25 Arkena Avenue, Epping, New South Wales 2121.
Newman, L J, NF5M, 8159 S. Jamieson Avenue, Tulsa, Oklahoma 74137-1616.
Nietyksza, W, SP5FM, Mazurska 11, 05-806 Komorow.
Oka, N., JM1THS, 2-15-3 Minami Ohizumi, Nerima-Ku, Tokyo 178.
Patchett, P B, VK4UL, 8 Fairway Drive, Clear Island Waters, Queensland 4226.
Reid, D. D., W9RWD, P O Box 773, Tremont, Illinios 61568.
Richards, J. K., VK6JKR, 8 Orangedale Road, Lesmurdie, W.A. 6076.
Rogers, J., VK7JK, 1 Darville Court, Blackmans Bay, Tasmania 7052.
Romanin, G, IV3573, P O Box 248, 33100 Udine.
Sergi, P. D., P.O. Box 1671, Stow, Ohio 44224.
Sortland, J L, VK2YJS, 1 Mullion Close, Hornsby Heights, NSW 2077.
Thomas, B M, VK2AMT, 10 Bentley Avenue, Forestville, NSW.
Tittsler, J. W., 7J1AJH, 4-1-14-504 Shimo-Renjaku, Mitaka-Shi, Tokyo 181-0013.
Tutton, J. K., VK3ZC, 11 Cooloongatta Road, Camberwell, Vic 3124.
Vizbar, R R, VE6RRU, 119 Stapeford Cres SE, Medicine Hat, AB T1B3Y8.
Wardlaw, D., VK3ADW, 21 Tormey Street, North Baldwin, VIC 3104.
Whelan, R C, G3PJT, 36 Green End, Comberton, Cambridge CB3 7DY.
Whitaker, A J T, G3RKL, 160 Derbyshire Lane, Sheffield.
Whitcher, A E, G7JUL, 12 Battersby Street, Jericho Bury, Lancashire BL97SJ.
Wilkinson, K. S., JG1YCI, 19 Farnswood Place, Redwood, Christchurch 8005.
Wilson, R. L., VK2ER, Glencoe Canobolas Road, Orange, NSW 2800.
Young-Soon Park, 8 Samsun-Dong 3-KA, HL1IFM, Sungbuk-ku, Seoul.

THE NZART RECIPROCAL LICENSING BUREAU

by RUSS GARLICK ZL3AAA

With appropriate licences and approvals, New Zealand radio amateurs may operate in some overseas countries. This is possible through "reciprocal agreements" between governments, through "Commonwealth recognition", or "guest licences". These three arrangements are distinctly different and apply in different countries in different ways.

It can be a lengthy business to get approval to operate in some countries. A residential qualification of months may be needed. Some countries prohibit portable and hand-held operation and may require that the station installation be inspected and tested. Procedures, rules and bands available vary considerably.

Council have appointed Russ Garlick, ZL3AAA, as the co-ordinator for the "NZART Reciprocal Licence Bureau." Should you contemplate an overseas trip, an early enquiry could assist you to obtain overseas operating privileges. Russ keeps information on the requirements and procedures that a ZL radio amateur should follow to operate in many countries. He can supply the address of the licensing authority with whom you should correspond in most countries, and the address of the IARU amateur radio society. It will be appreciated that a long lead-time is necessary in your dealings with overseas administrators.

Finally, it would be appreciated if you could provide Russ with copies of licences, regulatory brochures, etc., when you return, so that your experience can be used to assist others who travel.

The address is: Mr R. A. Garlick, ZL3AAA, 18 Harbour Road, Motueka. Remember to include your NZART membership number or a Break-In label.

To obtain an Australian Amateur Visitors Licence

To operate amateur radio in Australia, make application in person to any office of the Department of Communication who have offices in all main cities. A licence to operate will be issued "over the counter". The Department has available an information brochure (DOC 517) Guide to Amateur Radio operators visiting Australia, it has useful items.

The applicant is to present their current and valid licence held, or a copy of the licence certified to be true and correct by a person authorized to administer Oaths in the country of issue. A fee is charged. No prior application is necessary.

Providing documentation is in order there should be no difficulties in obtaining a licence by bona-fide visitors.

The kind of licence issued would be the equivalent of the applicants home licence. The operation of the licence must conform to Australian amateur band conditions and radio regulations.

To obtain a USA Amateur Radio visitors operating permit

New Zealanders who hold a valid Amateur Radio Licence issued by the New Zealand authorities are permitted to operate in the USA and the US possessions under the reciprocal agreement between our countries.

Under the FCC regulations, promulgated in 1999 no application is necessary and no permit is issued to operate.

During the periods of operating in the USA, you must carry proof of citizenship and your valid Amateur licence, issued by the country of citizenship.

There is no time limit you may operate but your home licence must be valid.

Visiting operators may not exceed the privileges granted to the US extra class licence.

Identification

Call-sign to be used: the letter/numeral designating the location of the transmission, ie, W9, W6, KH6, etc, by State, must prefix your New Zealand call, eg, "W6/ZL3AAA".

Guest Licences

New Zealand licenced operators can obtain a guest licence in the Republic of South Africa and Hong Kong.

Visitors to New Zealand

Intending visitors requiring information can do so from :

NZART Reciprocal Licencing Bureau
Russ Garlick ZL3AAA
18 Harbour Road, Motueka
New Zealand 7161.
Telephone/Fax (03) 528-7319
E-mail russzel@xtra.co.nz.

Visitors are also advised to obtain a copy of the NZART Call Book, which contains amateur frequencies, band plans, repeater locations, branch information and much other information. Callbook will be of assistance to amateur radio visitors travelling in our country and can be purchased from :

NZART Business Manager
P.O.Box 40-525, Upper Hutt
New Zealand.

The current price is $NZ22.

Short term

Any overseas amateur visiting New Zealand may be permitted to operate, while visiting this country for up to four weeks, on 144 MHz or above, under the following conditions:

1. No application need be made.

2. No fee is charged.

3. For a period of not more than four weeks.

4. They should be able, if necessary, to satisfy the Ministry of Economic Development that they hold a current licence and/or certificate equivalent to the New Zealand Limited or General qualification, valid for the term of their visit.

5. A copy of their current licence and/or certificate must be carried whilst in New Zealand.

6. Usage meets the requirements of the New Zealand Radio Regulations 1987 and conform to the terms, conditions and restrictions applying to amateur apparatus operating in New Zealand.

7. They operate using their home call-sign suffixed by ZL.

HF band operation is permitted by visitors from countries having reciprocal agreements with New Zealand. Application is to be made on arrival at any office of the Ministry of Economic Development. A permit will be issued and is valid for 12 months.

NOTE: Visiting amateur radio operators from countries not having formal reciprocal agreements with New Zealand may also operate HF bands up to 12 months. A permit is necessary from the Ministry of Economic Development. Application and requirement information is available from the Bureau. A two-month lead time is required by the Ministry of Economic Development to consider this class of licence.

CEPT Licensing

New Zealand amateur radio licences are now accepted by a reciprocal agreement with European Conference of Postal and Telecommunications Administration (CEPT).

Countries in this administration are: United Kingdom, Germany, Switzerland, Turkey, Austria, Belgium, Czechoslovakia, Cyprus, Denmark, Finland, France, Greece, Hungary, Ireland, Iceland, Italy, Liechtenstein, Luxembourg, Malta, Monaco, Norway, Netherlands, Poland, Portugal, San Marino, Albania, Bulgaria, Peru, Israel Slovak Republic, Solenia, Russian Federation, Spain, Croatia, Yugoslav Republic of Macedonia, Lithuania, Moldova, Romania, Latavia, Bosnia, Herzegovina, Vatican City.

New Zealand has implemented CEPT recommendation TR/61-01 and accordingly amateur radio operations may operate in any of the CEPT countries. No application or permit is necessary for visitors temporarily (two months) in these countries. For longer periods up to 12 months, providing the New Zealand licence is valid, it would be wise to seek advice from the licensing authority. Before departure ensure that your New Zealand licence has been endorsed to CEPT regulations by the Ministry of Economic Development (Radio Spectrum Division). While operating in CEPT countries the call-sign format is: that host country call-sign, stroke, the ZL call-sign. For example GM/ZL3..., OE/ZL2..., SM/ZL1..., DL/ZL4..., etc. Your valid New Zealand licence and current receipt of fee must be carried.

The visitor is advised that radio regulations vary in these CEPT countries and it is prudent to seek authoritative advice on regulatory matters such as frequency allocations.

The Reciprocal Licensing Bureau can supply the addresses of the licensing administrations in CEPT countries.

British Commonwealth Agreement

Holders of valid amateur certificates issued in Australia, United Kingdom, Canada, Cook Islands, India, Niue, Papua New Guinea, Zimbabwe and Irish Republic.

No prior application is necessary. A personal application should be made to an office of the New Zealand Ministry of Economic Development and a licence will be issued immediately over the counter. Applicants must submit:

1. A valid copy of the operating licence which must indicate the morse speed at which the applicant qualified.

2. A New Zealand postal address where all correspondence can be sent.

3. For British Commonwealth recognition the appropriate licence fee is payable based on length of stay in New Zealand.

Continued next page

MONITORING SERVICE

Monitoring Service Co-ordinator
JOHN HIRTZEL
ZL3ADF

The NZART Monitoring Service is part of the IARU Monitoring System. This system has been set in place by amateur organizations, each concentrating on their own country and region, and covers all amateur frequencies worldwide.

The aim is to record and report persistent non-amateur activities found in our allocated bands in order to effect their permanent removal.

The NZART Monitoring Service consists of a small group of enthusiasts who regularly record and report any intruder that they discover in the course of their normal radio activities. The basic information required can be seen on the accompanying report form. Most reports are send in monthly to the Co-ordinator. There is also a weekly Monitoring Service Net which operates on 3.705 MHz each Sunday night at 2130 New Zealand time using the special call-sign ZL6IW. The Monitoring Service Co-ordinator can also be contacted by e-mail: ms@nzart.org.nz.

The Service relies heavily on reports from amateurs for its continued effectiveness. It takes little time to note down a few details and pop them in the post. All enquiries and reports are answered or acknowledged promptly.

The NZART has provided sophisticated and up-to-the-minute equipment for its Monitoring Service and we can provide accurate information on nearly all intruders found.

A signal identification tape cassette and booklet is available on request.

Our bands have been hard won—you can help NZART and IARU retain bands for our exclusive use. So please participate.

John Hirtzel ZL3ADF
Monitoring Service
Co-ordinator

NZART MONITORING SERVICE

REPORTER: _____

SUMMARY OF REPORTS FOR: _____

FREQUENCY	UTC	DATE	MODE	COMMENTSw

STOLEN REGISTER

by
ROY SYMON
ZL2KH

The Stolen Equipment Register is operated by me on behalf of NZART, for the benefit of *all* radio amateurs and is only as effective as the rate of reporting thefts. Thefts are an invasion of privacy, traumatic, and anti-social. They can also be seen by some as being an opportunity for upgrading equipment at the expense of the insurance company. Whatever the attitude you take when you are robbed—please report the event to me so that it might be prevented from happening to someone else.

Details of stolen equipment to be notified to:

Roy Symon ZL2KH
PO Box 6082, Moturoa
New Plymouth
Telephone: (06) 758-2156.
Fax: (06) 758-2154
Cellular: (025) 245-1406
E-mail: zl2kh@taranaki.ac.nz.

This is to be in writing and to include all relevant details such as: make, model, where and when stolen, and a copy of the notice from the Police verifying that the theft has been notified to them.

Any notification made to me by telephone or Packet must be confirmed as soon as possible, in writing, as accurate records are a necessity and help to prevent malicious or false reports getting into the system.

There should be a declaration from the owner that the equipment belonged to them and that, to the best of their knowledge, all the details supplied are true and correct.

A lot of the details I find necessary will not be published. The lists will only show the make, model, serial number, date stolen; whereas I would need to know the location, owner's name and address, Police station to which notification was made, etc.

Lists of stolen equipment will be published in *Break-In* with regular updates as and when necessary. Complete lists will be available on request, both to Branches and individual members—as well as lists to holders of junk sales, to dealers, and the like. Such requests should be accompanied by a stamped addressed envelope.

I have compiled a cross-indexed database so that any parameter can give a match or access—and it is possible to give an answer re listing or otherwise over the phone in a similar manner to that given to people purchasing a car—all care and no responsibility though as the list could never be guaranteed as being complete. I would merely be able to state that a particular serial number did or did not appear on the list.

The aim of keeping this register is to make stealing amateur equipment unattractive (or even downright repulsive) to the stealer; to prevent amateurs from purchasing stolen equipment and subsequently having it confiscated; and to recover stolen equipment for the rightful owner. The temptation to buy a very cheap rig that has fallen off the back of a truck should be resisted at all times—the next gear stolen could be YOURS!

Please notify me, as soon as possible, of any stolen equipment that is recovered—it can then be withdrawn from the register and will help me measure the success of the scheme.

Roy Symon ZL2KH, Manager
NZART Stolen Equipment
Register

From page 3-1

Applicants with less than 5 wpm Morse qualification will be granted a Limited licence. Higher qualifications can be obtained by passing the appropriate examination in the usual way. Applications with 5 wpm or higher Morse qualifications will be granted a General licence.

The New Zealand Radio Regulations governing amateur band operations must be adhered to.

Note

At the time this information went to print several countries have adopted lower speed Morse qualifications, ie, 5 wpm, for general class licences.

Visiting operators to New Zealand holding licences with 5 wpm speed may or may not be granted HF permits under current regulations. Such visitors applying for a HF permit will need to clarify this upon application.

IARU INTERNATIONAL AMATEUR RADIO UNION

Liaison Officer: PETER LAKE ZL2AZ
Liaison: TERRY CARRELL ZL3QL, JAMIE PYE ZL2NN, ARTHUR (JUMBO) GODFREY ZL1HV

Where do I fit in?

As a radio amateur, your NZART Membership is vital to all of us.

Amateur Radio is an activity requiring international co-ordination in radio frequency spectrum matters. This is achieved through several international organizations and your support is needed.

Membership of NZART acknowledges importance for the continuance of amateur radio in New Zealand, of representation by radio amateurs to government and liaison between NZART and overseas amateur radio societies.

ITU—the International Telecommunication Union

The ITU is a United Nations Agency and can be viewed as an assembly of government representatives. See the ITU web page at www.itu.int. New Zealand is a Member and the New Zealand Administration is the Ministry of Economic Development. The MED spectrum management web page is at www.med.govt.nz/rsm.

Through its International Radio Regulations, the ITU allocates radio services to specific frequency bands. Member states are required to recognize these treaty provisions when licensing services to operate on specific frequencies within their own regulations and national boundaries. The ITU Radio Regulations also define the Amateur Service and the Amateur Satellite Service and set down other operating requirements.

Frequency band allocations and the International Radio Regulations themselves are reviewed at ITU World Radiocommunication Conferences (WRC).

The New Zealand Radio Regulations reflect the International Radio Regulations.

The International Amateur Radio Union (IARU)

The IARU is a Sector Member of the ITU where it represents the Amateur Services. It is recognized by administrations as the appropriate body to make recommendations on amateur radio issues. The IARU is permitted to present papers for the information of ITU conferences.

The IARU is a worldwide voluntary federation of some 151 amateur radio societies, founded in 1925. New Zealand joined in 1929. The prime purpose of the IARU is the protection of the Amateur and Amateur Satellite Services. The IARU Constitution is at the IARU web page: www.iaru. org.

The IARU is co-ordinated by an Administrative Council (AC) comprising a President, Vice-President, and two representatives from each of the three Regions:

Region 1 covers Europe, Russia and Africa,

Region 2 the Americas, and

Region 3 the remainder including New Zealand.

One society provides the IARU Secretary and the IARU International Secretariat (IS) administrative services. Currently this is the American Radio Relay League (ARRL).

The business of IARU is transacted at triennial regional conferences arranged in sequence so that one is held each year. The IARU member-societies of the Region meet at these regional conferences to discuss common problems, to find solutions, to determine policy, and promote international amateur radio.

Each Region has its own IARU regional organization. NZART is a founder and active member of IARU Region 3. Founded in 1968, the IARU Region 3 Secretariat is in Tokyo. The affairs of the Region are attended to between conferences by Directors who are elected at the triennial conference.

NZART

Founded in 1926, NZART is the New Zealand society. The IARU Constitution recognizes only one member-society in each country. NZART is duty-bound to represent the interests of the Amateur and Amateur Satellite Services.

NZART is recognized by and makes representations to the New Zealand Administration, the Ministry of Economic Development, on behalf of itself and the IARU.

NZART also makes presentations to IARU Regional Conferences and can influence IARU policies. The next IARU Region 3 Conference is in Taiwan in September 2003.

IARU representatives at ITU conferences

The IARU is represented at ITU conferences by a selected team of specialists in amateur radio affairs drawn from IARU societies worldwide.

For some important ITU conferences, a representative of the Amateur Service is included in national delegations from Member countries. Where appropriate, NZART finances an Amateur Service representative in New Zealand's delegation. There was an NZART representative on the New Zealand Delegations to ITU conferences in 1979 and in 1982.

The International Radio Regulations

A copy of the text of the regulations pertaining to Amateur Radio can be obtained on request from NZART Headquarters or from the "Study Guide" found at the NZART web page. A full copy of the Radio Regulations is available from the ITU Geneva but occupies several volumes. It is also available on CD-ROM, and is very expensive.

The International Radio Regulations do not of themselves regulate radio amateurs. With the status of an international treaty, they set out what administrations are expected to impose by their own national regulations.

International problems for amateur radio

All classes of radio service compete for their share of the radio frequency spectrum. Most services wield strong influence at ITU conferences. Decisions made there are affected by many factors, political, economic and social. At times the conference atmosphere is hostile to amateur radio.

Some decisions take many years to implement. The patient pursuit of long-term policies is needed to ensure the future welfare of the Amateur and Amateur Satellite Services.

The cost of this continuing vigilance is high. It comes from the radio amateurs in national societies and from the devoted voluntary efforts by many amateur radio specialists. A small part of your NZART subscription is remitted to IARU Region 3 each year to help fund international activities.

Remember, there is no actual security for the Amateur or Amateur Satellite Service. Constant vigilance, with time and money to protect our regulatory provisions are needed.

Further information

Enquiries on international radio matters are welcome at NZART Headquarters.

See the IARU web site at www.iaru.org and the Region 3 web site at www.jarlorg.jp/iaru-r3/. Both can be accessed via www.nzart.org.nz.

IARU

Administrative Council

President: Larry E. Price W4RA

Vice-President: David A. Wardlaw VK3ADW

Secretary: David Sumner K1ZZ

Region 1:

Chairman: Lou van de Nadort PA0LOU

Secretary: "Tim" Hughes G3GVV

Region 2:

President: Pedro Deidemann YV5BPG

Secretary: Rod Stafford W6ROD

Region 3:

Chairman: Fred Johnson ZL2AMJ

IARU International Secretariat

Address: PO Box 310905, Newington, CT 06131-0905, USA

Secretary: David Sumner K1ZZ

IARU Region 3

Secretary: Keigo Komuro JA1KAB. Box 73, Toshima, Tokyo 170-91, Japan

Chairman: Fred Johnson ZL2AMJ

Directors:
Young-Soon Park HL1IFM, Korea.
Yoshiiji Sekido JJ1OEY, Japan.
Peter Naish VK2BPN, Australia.
Kc Selva Selvadurai 9V1UV, Singapore.

Monitoring System Co-ordinators:

International: Bob Knowles ZL1BAD

Region 1: Ronald Roden G4GKO

Region 2: Martin Potter VE3OAT

Region 3: Arasu Nanohar VU2UR

Beacon Project Co-ordinators

IARU Beacon Project: Bob Fabry N6EK

Region 3: Jamie Pye ZL2NN

IARU Satellite Adviser

Hans van de Groenendaal ZS5AKV

IARU EMC Adviser

Christian Verholt OZ8CY

Region 3

Joong-Gruen Rhee HL1AQQ

AMATEUR RADIO EXAMINATIONS

by
ANNE ANDERSON ZL1TAF
NZART Examination Co-ordinator

General

The amateur service is defined in the Radio Regulations as: a radio-communication service for the purpose of self training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Amateur operators are required by provisions of the Radio Regulations to hold an appropriate qualification before they may be issued with an amateur radio station licence.

There are two grades of Amateur Operator's Certificate: General and Limited licences.

The examination for an Amateur Operator's Certificate is specified in the Radio Regulations.

Examination structure

The examination comprises two sections: Combined Section A+B and Section C.

Section A+B comprises a multi-choice written examination in Radio Regulations, the principles of electricity, radiotelegraphy, and radiotelephony, operating procedures, service codes and abbreviations as are applicable to the amateur service, and in the adjustment and operation of radio apparatus used in a typical amateur radio station.

Section C is a Morse operating test, both sending and receiving.

Requirements for certificates

For a General Certificate, a pass in Section A+B (written) is required, and with a five words per minute (Morse) in Section C are required.

For a Limited Certificate, a pass in Section A+B is required

Taking the examination

The Examination Division of NZART conducts section A+B (written) and Section C (Morse) on behalf of the Ministry of Economic Development (Radio Spectrum Management).

Sections A+B are taken together at one scheduled examination session.

The time allowed for the written portion of the examination is two hours, with an extra reading time of ten minutes.

Section C (Morse Test) is conducted by NZART approved testers.

The Morse test may only be attempted when a pass in Section A+B has been recorded. NZART offers a Morse testing service to candidates wishing to gain the Morse qualification for General grade amateur radio licences.

Examination Pass Requirements

Section A+B (Radio Theory and Regulations) is in the form of a multiple-choice question paper of 60 questions, each question having four possible given answers, of which only one is correct. Forty correct answers are required to obtain a pass.

Section C (Morse test) is conducted by NZART approved testers. The Morse test may only be attempted when a pass in Section A+B has been recorded. The Morse operating test is in two parts, sending and receiving. Each part will last for three minutes, and will contain both figures and letters. A pass at a speed of five words per minute is required, two errors are allowed in each part of the test, with three blemishes in the received copy being counted as an error. A blemish is regarded as any patched or otherwise imperfect character resulting from guesswork or bad writing.

Examination dates

Examinations for all sections of the Amateur Operator's Certificate are conducted *by appointment* with the NZART Examiners, and are held on a mutually acceptable date.

Applications for examination

Applications for all examinations should be made to local examiners. The list of examiners can be found on the NZART Web page or the address below.

Examination Fees must accompany the application. The current fee for all sections (A+B+C) is $25.00.

Where an upgrade is required and the applicant presently holds A+B pass no charge will be made to attempt Section C.

Examination result notifications

Following an examination, successful candidate will receive direct from the Examiner, an Examination Result Notification form which will indicate the sections passed. This document should be presented to an office of MED as proof that the candidate has successfully passed the examination and on appropriate payment to the department, shall be registered as an amateur radio operator.

Formal certificates

Operator's Certificates will not be issued automatically to those persons who obtain a full pass in any grade.

Formal certificates will only be issued on request to the Ministry of Economic Development Radio Spectrum Management Division. It should be noted, however, that an Examination Result Notification, which carries a statement that a full pass has been obtained in the relevant sections, would be sufficient evidence on which an application for an amateur radio licence for the appropriate grade can be made.

Examination recounts

Applications for recounts of the marks awarded in Section A+B must be made to the NZART Examination Division no later than one month after the examination in respect of which the mark in question was awarded.

The prescribed fee of $10.00 must accompany the application for recount.

Exemptions

The holders of the New Zealand First or Second Class Radiotelegraph Operator's Certificate or their equivalent are granted full exemption. Holders of other Radio Certificates may be granted exemption from Radio Theory questions. Applications for exemption must be made to Ministry of Economic Development (Radio Spectrum Management) and accompanied by copies of the documentation the request for exemption is based upon.

Licensing of Amateur Stations

Applications for licences to operate amateur radio stations should be made to the nearest office of the Ministry of Economic Development (Radio Spectrum Management).

Application may also be made for a specific radio call sign, which if not already allocated, may be issued on payment of the specified fee.

Study courses

Appropriate study information can be obtained form NZART PO Box 40-525, Upper Hutt, 6415, from the NZART web page www.nzart.org.nz.

Note to Branches

The NZART Morse testing service is managed by the Examination Co-ordinator, who is an officer of NZART. The actual Morse tests are administered by participating NZART Branches. Branches are responsible for choosing a Morse Tester and a Morse Scrutinizer from the members of their Branch.

For a Branch to be able to offer a Morse testing service, it must first choose a Morse Tester. This person must hold a current General Licence and be a member of NZART. A Morse Scrutineer is also required and must be a licensed amateur from the same or adjacent Branch. The Examinations Co-ordinator and NZART Headquarters is to be notified of the names, call-signs and contact details of the persons the Branch appoints to these roles. This information to be updated annually.

The Examinations Co-ordinator will appoint the Morse Examiners and allocate them with a registration number. Once a candidate has contact a local Morse Tester, the tester will arrange a date for the test, which will be computer generated. The test pieces will be in Farnsworth format. Each branch is responsible for providing the necessary hardware such as a computer, oscillator, key and earphones as required.

Further enquiries

Please direct enquiries about the Amateur Radio Examinations to:

NZART Examination Division, PO Box 40-525. Upper Hutt 6415

Telephone (+64 4) 528-2170 Fax (+64 4) 528-2173

E-mail exam@nzart.org.nz.

Terms, Conditions and Restrictions Applying to General and Limited Amateur Radio Licence

1. The licence permits the use of radio apparatus to conduct Radiocommunication for the purpose of self training, intercommunication and technical investigation other than for pecuniary gain.

2. The emission from amateur radio apparatus for any radiocommunication should be of the minimum bandwidth and power as is necessary to ensure a satisfactory service.

3. For Amateur Radio Apparatus the radio frequency power output shall not exceed 120 W mean power or 400 W peak envelope power.

4. No licensee of amateur radio apparatus shall use, or permit to be used, any such apparatus for the transmission of international communications on behalf of persons not being authorized amateur radio operators unless such communications are specifically authorized by the countries concerned.

(a) The passing of brief messages of a personal nature on behalf of non-licensed people or organizations within New Zealand is permitted, provided no tolls, fees or other consideration shall be received or collected by the licensee of the amateur apparatus.

(b)The licensee of amateur radio apparatus may permit persons other than qualified amateur operators to use the apparatus to pass brief personal messages under the direct supervision of the licensee. Under no circumstances may persons other than the authorized amateur operators engage in calling or signing-off procedures, or manipulate the controls of apparatus.

5. The licensee is only permitted to use the frequency bands listed below for the grade specified on the front page of the licence.

6. All Amateur bands are available for use by all Amateur licensees at times of natural disaster in connection with international relief operations, subject to the approval of the Chief Executive.

7. Amateur Frequency Allocation Chart

Band	Notes	Grade	Band	Notes	Grade
165–190 kHz	2, 4, 6 and 9	General	922–927 MHz	2, 3, 4, 7 and 8	General and Limited
1800–1950 kHz	2		1.24–1.30 GHz	1, 2 and 6	
3.50–3.90 MHz	2		2.396–2.45 GHz	1, 2, 3 and 6	
7.00 to 7.10 MHz	1		3.30–3.50 GHz	1, 2, 4 and 6	
7.10–7.30 MHz	2 and 6		5.65–5.85 GHz	1, 2, 3 and 6	
10.10–10.15 MHz	2 and 6		10.0–10.5 GHz	1, 2 and 6	
14.00–14.35 MHz	1		24.00–24.05 GHz	1 and 3	
18.068–18.168 MHz	1		24.05–24.25 GHz	2, 3 and 6	
21.00–21.45 MHz	1		47.0–47.2 GHz	1	
24.890–24.990 MHz	1		75.5–76.0 GHz	1 and 4	
27.12 MHz	3 and 5	General and Limited	76.0–81.0 GHz	1 and2	
28.00–29.70 MHz	1	General	122.25–123.00 GHz	2 and 6	
51.00–29.70 MHz	2	General and Limited	134–136 GHz	1	
144–146 MHz	1		136–141 GHz	1, 2 and 6	
146–148 MHz	2		241–248 GHz	1, 2 and 6	
430–440 MHz	1 and 2		248–250 GHz	1	
614–622 MHz	2 and 6		275–1000 GHz	2 and 4	

Notes

(1) The bands 7.0–7.1 MHz; 14.0–14.25 MHz; 18.068–18.168 MHz; 21.00–21.45 MHz; 28.890–24.990 MHz; 18.0–29.7 MHz; 144–146 MHz; 435–438 MHz; 1260–1270 MHz (earth-to-space direction only); 2.40–2.45 GHz; 3.40–3.41 GHz; 5.56–5.67 GHz (earth-to-space direction only); 5.83–5.85 GHz (space-to-earth direction only); 10.45–10.50 GHz; 24.00–24.05 GHz; 47.0–47.2 GHz; 75.5–81.0 GHz; 134–141 GHz and 241–250 GHz may also be used for amateur satellite communcations.

(2) These bands are or may be allocated for use by other services. Amateur licensees may not use them in a manner which interferes with such other services.

(3) The frequencies 27.12 MHz (± 163 kHz), 925 MHz (± 4 MHz), 2.40–2.45 GHz, 5.8 GHz (± 75 MHz); and 24.125 GHz (± 125 MHz) are designated for industrial, scientific and medical (ISM) purposes. Amateur licensees operating on allocations within these limits must accept interference from ISM equipment.

(4) Allocated for use by amateur licensees on a temporary basis until further notice.

(5) Telecontrol and telemetry operation only. Power output not to exceed 5 W mean power.

(6) These bands are allocated for use by other primary services, and Amateur usage is on a secondary service basis. Users of a secondary service cannot claim protection from harmful interference from users of a primary or permitted service to which frequencies are already assigned or may be assigned at a later date.

(7) Services particularly sensitive to other RF energy sources operate in adjacent frequency bands. Amateur licensees will be required to immediately cease transmission in the event of complaints of amateur interference to these services.

(8) Power output is not to exceed 25 W EIRP.

(9) Experimental use only. Power output not to exceed 5 W EIRP maximum.

Tell our Advertisers you saw it in *Call Book*!

THE NZART QSL BUREAU

The NZART QSL Bureau is one of a network of bureaux established by the IARU to facilitate the exchange of QSL cards between NZART members and radio amateurs and listeners throughout the world.

Outward QSL Cards

The service is free to both transmitting and non-transmitting members of NZART—non-members may make use of this service at a cost of **25c per card.** All QSL cards for forwarding to radio amateurs and listeners in New Zealand and overseas countries should be posted to:

The QSL Manager
NZART QSL Bureau
PO Box 857
WANGANUI

The *call-sign* of the station to whom the card is addressed should be printed *clearly on both sides of each card.* Are you sending your card to a DX-station's Manager? If so, please write the Manager's call on the back of the cards. (Cards are sorted using the call printed on the back of the card.) If you see fit not to write the recipients' call-signs on the back of your cards, it is pointless to carry out the last instruction—we are not clairvoyants! When writing call-signs onto your cards, please take care with the forming of the letters and numbers. Make sure that the letter V will read V, not U, an "S" looks like an ess and not the figure "5" and vice versa, etc. This will greatly help the Bureau staff in their sorting! Remember also that English is not the first language of everybody handling and receiving your cards!

Please sort your QSL cards into New Zealand call-district order (ie ZL1-2-3-4, etc), USA and Australian call-district order and all others in alphabetical order: eg A3, EA, ES, EU, G, I, OK, S5, SM, UA, UN, UR, VK1-2-3, etc, W1-2-3, etc (USA prefixes are kept together—A-K-N-W1 cards all go to their First District Bureau; likewise all A-K-N-W2 cards go to the Second District Bureau and so on), YU, ZL1-2-3-4, 3D, 5W, 9A. *Please do not separate countries with rubber bands, strips of paper etc.*

Members must enclose a current year *Break-In* label with each posting. After complying with the above, sit back and be patient!

Inward QSL cards

The NZART QSL Bureau provides a *free inward service for all New Zealand amateurs and listeners.*

Collecting cards from the sub-bureaux by members and non-members

Please note that the four mainland prefixes. A ZL1 living anywhere in New Zealand deals with the ZL1 sub-bureau, ZL2s likewise with the ZL2 sub-bureau, and so on through to the ZL4s. Supply your particular QSL sub-bureau (listed below) with a supply of suitable size stamped self-addressed envelopes (SASEs) to receive your incoming cards. Envelopes should be numbered and "Last Envelope" marked on one so that you are reminded when yo renew the supply. Please make sure that you include your call-sign on the front of your envelopes as each sub-bureau only deals with call-signs and not with operators' names. Any specific requests for forwarding cards should be printed on the back of the envelopes: for example "send monthly" or "send when there are 10 cards" etc.

Some Branches have special arrangements for "Branch postings" in place with the appropriate sub-manager. Contact your local Branch secretary for information. (The possible provision of this service is totally the prerogative of each individual sub-manager and there is no compulsion on any person to be a party to any such collective scheme.)

QSL sub-managers

ZL1

Mr J. Small ZL1KQ, 32 Paddington Street, Glen Innes, AUCKLAND 1106.

ZL2

Mr A. H. Marr ZL2AGY, PO Box 3, GREYTOWN.

ZL3

Mr E. W. Jeffris ZL3DV, 4 Cunningham Street, Leeston, CANTERBURY.

ZL4

D. A. Adams ZL4OZ, 47 Wray Street, DUNEDIN 9001.

Your QSL Card

1. Should *not exceed 140 × 90mm* in size.

2. Have all the necessary information on one side of the card—if you intend having a two-sided card, make sure your *call-sign* is printed on *both* sides.

3. Use Universal Co-ordinated Time (UTC) (formerly referred to as GMT, also referred to as ZULU time)—New Zealand Standard Time (NZST) or New Zealand Daylight Saving Time (NZDT) is meaningless to 99.9 per cent of amateurs—and you do want a card back from them!

4. It is advisable to write out the name of the month to avoid confusion.

5. *Do not correct mistakes, make a new card out.* Altered cards are valueless to the recipient.

Any further information concerning the business of the QSL Bureau, or requests for info on DX station QSL Managers/direct mail addresses (we will do our best to assist!) can be obtained from the QSL Manager at PO Box 857, Wanganui or e-mail zl2rr@infogen.net.nz.

PS! Special calls and DX-peditions

If you, or your Branch, put on a special event/contest station using a special call-sign allocation for the duration thereof, or partake in a DXpedition, please notify the QSL Bureau Manager and supply him with the relevant QSL Manager info!

SHIFTING HOUSE?

REMEMBER TO ADVISE THE FOLLOWING

1. AMATEUR LICENCE

Inform the Radio Inspector at your nearest Ministry of Economic Development (Radio Spectrum Management).

2. *BREAK-IN* DELIVERY

Advise the Office Manager, NZART HQ
PO Box 40-525, UPPER HUTT 6415

of your new address. Mention your call-sign and Membership Number (see page 4–16).

This advice will be forwarded to the *Call Book* Call-sign Compiler who will amend your *Call Book* listing.

SUSTAINING THE AMATEUR SERVICE

A responsibility for each of us!

The amateur radio qualification is an achievable challenge to most people and is useful to career-seekers in our technological world. It shows aptitude and sincere interest in communications, and identifies an achiever. It can give a jump over others in this competitive world.

The late 1940s was a time with a wave of new entrants into amateur radio. Let us all try to promote a return to that level of interest! NZART Council encourages newcomers into Amateur Radio. This calls for the help of all radio amateurs. A challenge to all of us. Council has adopted the expression The New Wave to embrace initiatives and objectives to encourage new entrants.

1. The NZART Constitution in its object says:

"The objects of the Association shall be the maintenance and expansion of the Amateur Service in New Zealand by:

"(a) the encouragement of recruits into the Amateur Radio movement

"(b) the provision of guidance and instruction in radio techniques and operating

"(c) the promotion organization and conduct of activities on a national and local basis ...", etc.

2. These objects are further reflected in wording in the NZART Strategic Plan, in particular Objective 2:

"To promote knowledge of amateur radio and encourage newcomers. To assist Branches in local activities, especially in schools. To provide education and training aids. To award suitable prizes and other recognition."

And, in the plans of action:

"To publish information in Break-In, training materials and aids, educational and publicity material."

3. The NZART Strategic Plan Objective 3 states:

"To provide guidance and instruction in radio techniques and operating, and encourage practical experimentation."

With your guidance and your help, others too can experience the thrills of Amateur Radio. Active encouragement and support are sought from all NZART members and from all Branches to recruit newcomers and to run classes in preparation for the amateur radio examination.

Branches are encouraged to actively promote Amateur Radio. Master copies of brochures, posters and other leaflets and publicity material are available to Branches for this purpose, free of charge from NZART Headquarters.

A sticker is available to NZART members from NZART Headquarters for 50c each. This is for displaying in the rear window of vehicles to show your support in a national campaign to increase the awareness of Amateur Radio in the general population.

Many computer users are unaware of amateur radio and what it has to offer. You are encouraged to widely advertise the NZART World Wide Web page, www.nzart.org.nz

Simple-to-construct equipment is a way to show youth groups and other interested persons the fun of Amateur Radio. Show how inexpensive home-construction brings delight and excitement from the achievement of communicating without wires over long distances using self-built gear. Articles from Break-In may be freely photocopied and distributed for this purpose.

The Novice licence is an achievable challenge. Do you know anyone who has shown interest in Amateur Radio? A youth or grandchild perhaps? Spread the word by demonstration!

After passing the amateur radio examination, a call-sign is issued by the Ministry of Economic Development, a call-sign that is unique world-wide. The challenge to attain such an identifying call-sign brings its own rewarding fun.

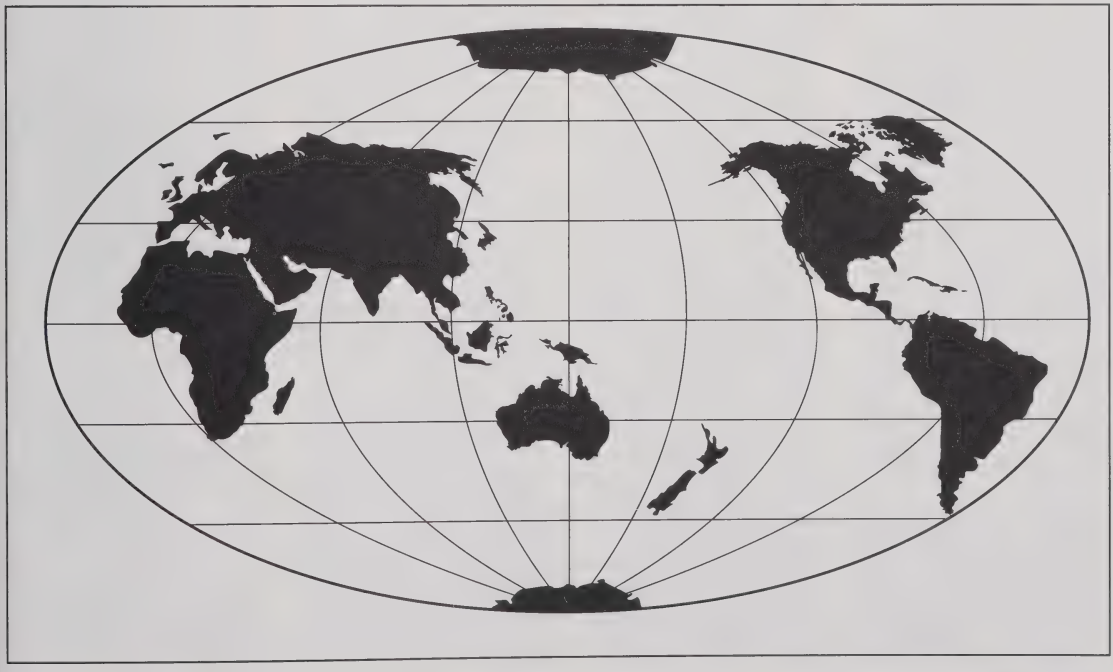
A local "group project", with the challenge to interest newcomers to develop their own local on-air amateur radio net, is worthy of consideration and encouragement.

The construction of receivers, transmitters and other projects under the guidance of experienced constructors at "club workshop nights" are worthy Branch activities.

Each Branch should appoint an "NZART Agent" as one of their executive, the task being to gain increases in NZART members, both Transmitting and Non-Transmitting, in their local areas.

A national and concerted effort by all New Zealand Radio Amateurs to promote Amateur Radio is necessary to ensure the continuation of a healthy and vigorous Amateur Service.

Help bring The New Wave of radio amateurs!



A GUIDE TO VHF AND UHF FOR NEW LICENSEES

Jane Atkinson ZL2QO, Jim Meachen ZL2BHF, Stephen McNeill ZL4HG

This article has been prepared by those listed above on behalf of the Wellington VHF Group, Branch 74 NZART (Inc.), PO Box 12-259 Wellington, to offer guidance to the newcomer to the wonderful world of amateur radio.

"Sam the Mobile Man" guest appearance courtesy of Sue Lill

© August 1994

Why such an article?

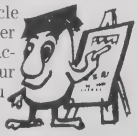
You've just got your licence. Your new rig has arrived today and is ready for use. You turn the power on. So, what do you do?

It can be pretty daunting when you first start out knowing what to say, or what not to say.

This article is designed to help you through your first few contacts. It's important to remember that there are no fixed rules. Many of the observations that are made in this article are the result of experiences we have had over a number of years, and you must remember that your operating may not necessarily cover what we've been interested in. So be it. This is a guide. Use it as a kind of à la carte offering of ideas.

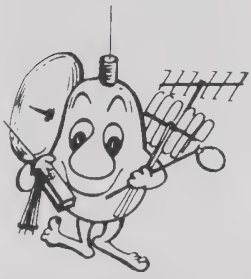
The only way to become familiar with the operating procedures on VHF or UHF is to spend some time listening to the good operators, noting how and why their methods succeed where those of the poor operator do not. It is quite important as newcomers that you should be discriminating in this respect, and not simply mimic what you have heard when going on the air for the first time. To summarize, copy the good operators, and not the bad ones!

How this article is written



The article covers a number of different facets of amateur radio that you are likely to encounter in the VHF spectrum. You'll find these are often the same ideas you'll use on HF, but that kind of operating is beyond the scope of this article. You can find some excellent books on the general topic of operating, and you're encouraged to seek out the information contained therein. Some good examples of operating books, all of which can be obtained from NZART Headquarters, are as follows:

- ★ A Guide to Amateur Radio, Pat Hawker G3VA, RSGB, Nineteenth Edition.
- ★ Amateur Radio Operating Manual, R. J. Eckersly G4FTJ, RSGB, Third Edition.
- ★ The ARRL Operating Manual, edited by Robert J. Halprin K1XA, ARRL, Third Edition.
- ★ AREC Manual, NZART, 1978.



Some terminology

There are lots of words that are used everyday in the world of VHF in amateur radio. Among the most common are as follows:

AM Amplitude Modulation. A method of voice encoding a transmission which is seldom used these days. Specifically the strength of the signal transmitted varies with the strength of the voice signal.

AMSAT Amateur Satellite Corporation. An amateur radio organization promoting and developing the amateur satellite service. Over two dozen satellites have been built by amateurs worldwide and are universally available.

AREC Amateur Radio Emergency Corps. Groups of amateurs within NZART Branches who provide emergency communications in conjunction with other organizations as the situations demand.

ATV Amateur Television. The transmission of video signals by radio amateurs. This transmission can sometimes take place through a special kind of repeater.

Autopatch A device for interfacing a repeater to a telephone line. Such a device responds to audio tones generated by a telephone touch-tone pad connected to the user's rig or microphone.

Break The word used to interrupt a conversation on a repeater, often to indicate there is an emergency.

Call Book An annual publication by NZART that contains amateur call-signs, frequency allocations, repeater maps and other vital operating information.

Channel The pair of frequencies, input and output, used by a repeater.

Clear Indicates the end of a contact.

Coverage area the geographic area within which a repeater provides communications (sometimes called the footprint).

CQ A general call made requesting someone to talk to.

CTCSS Continuous Tone Coded Squelch System. (Sometimes known as PL or Private Line.) A sub-audible tone system used when you want to activate just one or a small number of remote receivers.

CW Continuous Wave. Commonly known as Morse code. Used in weak signal or long distance applications and sometimes in conjunction with amateur satellites. This is an "on-off" or dot-dash type of transmission.

Data repeater A repeater specifically designed for use in passing data, rather than voice communications. Of course, it may be used for both.

Digipeater A Packet radio repeater. Packet radio is a form of data transmission. Voice cannot be transmitted through a digipeater.

Dropping out The situation that exists, while you are using a repeater, when your signal does not quite have enough strength to keep the repeater triggered (see "Trigger").

DTMF Dual Tone Multi Frequency. A system often used for repeater control, using two tone frequencies. This control is often achieved by a simple keypad on your microphone or rig.

Duplex A mode of communication in which you transmit and receive simultaneously.

FM Frequency Modulation. A method of voice encoding a transmission, which is frequently used in conjunction with repeaters. Specifically, the strength of the signal transmitted is constant but its frequency varies with the strength of the voice.

FTMAG Frequency Management and Technical Advisory Group. A group that advises NZART on technical matters, particularly those relating to VHF and repeaters.

Full quieting A received signal that contains no noise.

Handheld A portable receiver that is small enough to fit in the palm of your hand.

Handle This refers to your name. Note, the term "personal" is not generally used in amateur radio.

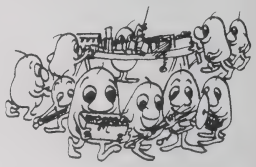
Horizontal polarization The nominal orientation that a radiowave is taken to have as a result of an aerial's physical layout and orientation. Horizontal polarization is by convention very often used in weak signal applications at VHF/UHF.

Input frequency The frequency that the repeater receives on, and also the frequency on which you transmit to the repeater.

Magnetic mount (Also **Mag Mount**) A mobile antenna with a magnetic base that enables quick installation and removal from a car.

Ministry of Economic Development (Radio Spectrum Division) Ultimately responsible for the administration of all the radio frequency spectrum in New Zealand.

NiCd (also **Nicad**) A Nickel-Cadmium battery that may be recharged.



NZART New Zealand Association of Radio Transmitters (Inc). New Zealand's national amateur radio society, PO Box 40-525, Upper Hutt.

Offset The difference between a repeater's transmit and receive frequencies. In New Zealand this is plus or minus 600 kHz on the 2 m band and 5 MHz on the 70 cm band.

Output frequency The frequency that the repeater transmits on, and also the frequency on which your receiver receives the repeater.

Over The word used to indicate the end of a voice transmission.

Packet radio A way of transferring data or messages between amateurs across town, about the country or around the world.

Phone patch A device for interfacing the audio input and output of a radio transceiver to a telephone line.

RDF or **DF** Radio Direction Finding. The amateur technique of locating a transmitter.

Repeater trustee Person elected by an NZART Branch to take responsibility for proper operation of a repeater.

Roger The word that indicates all information was received correctly.

SAR **S**earch **A**nd **R**escue.

Simplex A mode of communications where you transmit and receive on the same frequency.

Sked A pre-arranged radio contact between two or more stations.

SSB **S**ingle **S**ide**b**and. A method of narrow band voice encoding commonly used for long-distance or weak signal communications in both the high Frequency (HF), VHF and UHF parts of the spectrum. Very commonly used in conjunction with amateur satellites.

STSP Repeater **S**hort **T**erm **S**pecial **P**urpose **Repeater.** A repeater designed for emergency use or during special events.

Tone pad A device that is used to generate a standard set of tones that can be used to control certain functions on a repeater, or remote equipment (see DTMF).

Triggering To activate a repeater by transmitting on its input frequency.

Vertical polarization The nominal orientation that a radio wave is taken to have as a result of an aerial's physical layout and orientation. Vertical polarization is by convention very common in repeater operation at VHF/UHF. Antennas on handhelds when held upright and on cars are vertically polarized.

NZART

The New Zealand Association of Radio Transmitters (Inc) is New Zealand's representative society for radio amateurs. It provides a wealth of services to assist both the new and established amateurs. It publishes a monthly magazine (Break-In) and an annual Call Book. It represents the interests of amateur radio at both the national and international levels. It is controlled by an Executive Council elected by members. It has over 80 Branches throughout New Zealand, and has a membership of over 3000 amateurs.

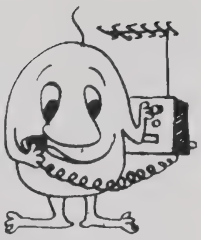
One of the services that is provided by NZART is the planning of band usage and the national co-ordination of repeaters and beacons. It does this based on the recommendations of its Frequency Management and Technical Advisory Group (FMTAG).

Inquiries about NZART services and membership may be directed to:

NZART Headquarters
PO Box 40-525
Upper Hutt

Establishing a call

There are two accepted way of establishing contact with another station. The first method is to put



out a general call to all stations, known as a "CQ", and to hope that another station responds. The second is to call another specific station by prior arrangement, known as keeping a "sked", or after the other station has just finished a contact or called CQ.

CQ calls are not normally made through repeaters. Instead, stations announce that they are "listening" on the repeater. For example, you might say:

"This is ZL2BHF listening seven-ten."

To start a sked with another station, you will call the other station by its call-sign, followed by your own call-sign, such as:

"ZL2QO, this is ZL4HG."

The station that is being called might have his or her call-sign repeated a few times, just in case they don't hear the single call. You might also be wise to issue your own call-sign in phonetics so that there is no mistake who you are. For example:

"ZL2QO, ZL2 Quebec Oscar, ZL2QO, this is ZL4HG, ZL4 Hotel Golf, ZL4HG."

However, remember that phonetics really only need to be used to clarify who you are in conditions that might make certain letters ambiguous, or where the band is noisy, or where your signal is likely to be weak. Over-use of phonetics is rather annoying, and time consuming.

Answering a call

You answer a CQ or sked call from another station in the same way that you would make the sked call in the first place. For example, in the above instance, where ZL4HG is trying to call ZL2QO, the latter station might answer the call in the following way:

"ZL4HG, this is ZL2QO ..."

and the conversation would continue. It's that simple!

How to pass transmission to another station

When you have finished saying what you want to say on one transmission, and you want the other station to reply, you do so by simply saying the word "over".

Before you say the word "over", you may want to indicate the other station's call-sign, and your call-sign too, in that order. Note that it is not absolutely necessary to give both call-signs at the beginning and end of each and every over, your own call-sign will suffice. But, if you do give the call-sign, you must give the full call-sign, not an abbreviated version. For example, use "ZL2BHF" and not "2BHF" or "BHF".

Letting other stations in

If you are in the middle of a conversation, and a station transmits his call-sign in the pause between transmissions, the next station in the queue to transmit should acknowledge that station and permit him or her to make a call and join the conversation. It is not polite to ignore him and, furthermore, it is rude to acknowledge him but not to let him speak. You never know, the calling station may need to use the repeater immediately. He may have an emergency on his hands, so let him make a transmission promptly.

Joining an existing conversation

If you wish to join a conversation that is already in progress, transmit your call-sign between transmissions. The station that transmits after you drop in your call-sign will acknowledge you, and usually invite you to transmit.

A brief pause, say three seconds, before you begin each transmission allows other stations to participate in the conversation. So don't transmit immediately that the other station stops. If you begin transmitting too quickly, you can prevent other stations from getting in. Also, there might be an emergency, so leave a pause!

Before you join an existing QSO, stop and think, "is it appropriate for me to join in?". If it's a technical matter and you know something about it, it's probably all right. If

it's on a more personal level, it might be better to wait until they have finished before giving a call, unless you know them fairly well. Either way, just give your call-sign and wait to be invited in. Jumping straight in with your comments is no better manners on the air that it is in person.

How to tell when it's your turn to talk

The station with whom you are talking will pass transmission back to you by one of the methods outlined above. Remember the pause before you transmit!

When and how often to give call-signs

A major source of frustration and annoyance to many operators can be the excessive use of call-signs. Take this example:

"Zl4 HG from ZL2BHF, are you parked yet Stephen? Over."

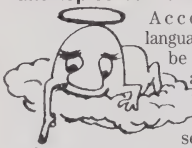
"ZL2BHF from ZL4HG. Yes. Over."

"ZL4HG from ZL2BHF, OK I'll see you later. Over."

"ZL2BHF from ZL4HG, over where, over."

We suggest you identify yourself at regular intervals, say once every ten minutes, as well as at the beginning and end of a conversation.

Standards of language, and topics best avoided



Acceptable language should be used at all times. Even what seem like mild expletives can cause offence to some people, and may pave the way for worse behaviour from others.

Whatever bands, mode or type of operating one is undertaking, there is a fundamental point to remember. That is that the "private" conversation with the other station is actually in public. Never discuss emotive subjects, such as politics, race or religion over the air to avoid the possibility of giving offence to others. Never give any information over the air which might be of assistance to the criminally inclined, such as the time that a house is unoccupied, dates of holidays, and valuables in the house. Telephone numbers, especially those belong to others, should be handled with considerable discretion.

Unidentified transmissions

Occasionally you may hear a conversation that you think you can enhance with a suitably witty addition, suitably anonymous. Don't be tempted to do so! All transmission must be identified! If you hear someone who appears to be a pirate, or who might perhaps be trying to bait the users of the frequency, don't rise to the bait—just ignore them. They will soon become bored and go away.

List of commonly heard Q Codes

Q Codes were originally developed for use with Morse code, to speed up the sending of commonly-used phrases. They are not strictly necessary when carrying on a voice contact, since it is usually just as quick to use the ordinary English equivalent: eg "Go to six-five-two-five" instead of "QSY six-five-two-five". However, some Q Codes are still used quite a bit on VHF and UHF. The more commonly used ones are:

QRM Interference
QRN Static
QRO High power
QRP Low power
QRT Cease transmitting
QRX Stand by
QRZ Who is calling? Who is there?
QSB Fading
QSO Contact, conversation
QSY Change frequency, go to
QTH Location

What a repeater is and how it works

A repeater is a special kind of transmitter and receiver combination that receives a signal and simultaneously retransmits it. A repeater situated on a vantage point such as a hilltop can dramatically increase the range of VHF and UHF communication in hilly areas and for users of low-power transceivers such as handhelds. To prevent the repeater from becoming unusable due to feedback, the receive and transmit frequencies are different. The difference between the two signals is known as the offset or split (see definitions).

To access a repeater, an amateur transmitter has to be set up so that it transmits on the repeater's input frequency and receives on the repeater's output frequency. Most (but not all) repeaters continue to transmit a carrier (known as the "tail") for a few seconds after the input signal ceases, so that the user can check that he or she is actually accessing the repeater. A list of repeater frequencies is given in Section 7 of this Call Book.

In New Zealand all repeaters are "open", that is, any licensed amateur is permitted to use the repeater without necessarily being a member of the local club. This is not necessarily the case in other countries.

Repeater timeouts

Some repeaters incorporate timing devices. These prevent an over from lasting longer than the time that the repeater is set to, usually two or three minutes. If a station transmits for longer than this, the repeater will cease retransmitting after the allotted time is up and a deathly hush will descend upon the frequency. The repeater timer resets when a new transmission begins. Two repeaters that currently incorporate this feature are Motueka 670 and Manawatu 910 (part of the National System).

Repeater alarms

Some of the more sophisticated repeater systems incorporate alarms to warn users of such things as power failure. Usually some kind of tone or signal will appear briefly at the end of each over.

The signal that appears after each transmission on Blenheim 695 is not an alarm but an identifier. It transmits the characters "BM" in Morse.

If you hear an alarm signal, first make a note of what type it is. If it is a digitized voice, what it is saying? Notify the repeater trustee as soon as possible (within reason—phone calls at 3 am are unlikely to be appreciated). If you don't know who the trustee is, get in touch with a committee member of the branch responsible for the repeater.

Most mains-powered repeaters have battery backup systems so that they can keep going if the power fails. As the repeater might have to remain on emergency power for some time, it is best not to use the repeater unless you really need to. Conserve emergency power for emergency use.

DTMF and CTCSS control codes

Some repeaters will respond to DTMF tones (see your transceiver manual to determine if your set can generate these tones). These fall into two main types: codes for use only by trustees for controlling repeater functions, and codes for use by amateurs in general. The most common in the latter group is the signal strength report generator. If a certain sequence of DTMF tones is transmitted, the repeater will respond with an indication of the signal strength it has received. The sequence of tones and the type of response received will vary from repeater to repeater. One thing remains constant with all of them: the need to IDENTIFY YOURSELF. Something along the lines of "This is ZL2BHF testing" is usually sufficient.

The uses of continuous tone coded squelch system (CTCSS) are many and varied. It may be used, for instance, by one station to contact a second without the second station being disturbed by other stations on the frequency. This may be useful when a station is waiting for a specific station to talk, but it is not the way most of us operate. A second use of CTCSS is as a warning that your station is being called, without necessarily locking out other stations. Manufacturers offering CTCSS facilities on their rigs often do so in a way that makes these facilities specific to their products; this may limit the usefulness of this feature. So, you should consult other amateurs before you use these facilities.

The National System

The National System is a series of dedicated linked high-quality repeaters on the 70 cm band. When a station accesses one of these repeaters, the signal is relayed to all other repeaters in the System and can be heard simultaneously up and down the country. For example, a station with a handheld in Wellington can talk via the System to a station in Auckland as if he or she were in the local region.

Guidelines for repeater use

Your local repeater will be monitored by more people than any simplex frequency, both by amateurs and non-amateurs. For many people it will be the only one they use—if it is occupied they will not be able to go to another one in the same way that another simplex channel can be used if one is busy. Therefore, extra courtesy and consideration for others is warranted.

Pay attention to good operating procedures—other listeners need to know what is going on. They will particularly want to know if a contact has been finished, so that they can use the repeater without worrying about getting in the way of someone else's conversation.

Keep in mind at all times why the repeater is there. In most cases, this will be voice communications. Non-voice modes on a voice repeater are not usual practice unless there are special circumstances—which usually means having discussed it previously with the repeater trustee. Digital modes (RTTY, AMTOR, Packet) are especially annoying to listen to and, of course, can't be deciphered without specialized equipment.

Voice on data repeaters (not digipeaters) is considered OK if that repeater is the only one you can use to make contact. It's probably best not to make the QSO any longer than absolutely necessary; you will no doubt reach this conclusion fairly rapidly yourself once the data starts coming in over the top of your transmissions!

One way use (ie, where one or more stations are not heard on the repeater output) is not advisable. A quick call to request another station to go to another frequency is OK, but it is inconsiderate and confusing to others to keep up a one-way contact for any length of time. Use simplex and a dummy load where possible for the alignment and preliminary testing of equipment. Avoid the use of repeater input frequencies for this purpose.

NZART co-ordinates the repeater system and will generally only accept proposals for repeaters that meet the guidelines commonly accepted in New Zealand. The FMTAG is responsible to NZART for the maintenance of repeater technical standards and recommended channel allocations. All repeater systems in New Zealand require a licence from the New Zealand Radio Frequency Service.

Bear in mind that all the comments above apply specifically to New Zealand repeaters and there may be marked differences in the operation of overseas repeaters and the procedures which you must use to work with them.

Amateur radio is "on display" on repeaters more than anywhere else. Try to create as good an impression as possible.

Phone patches

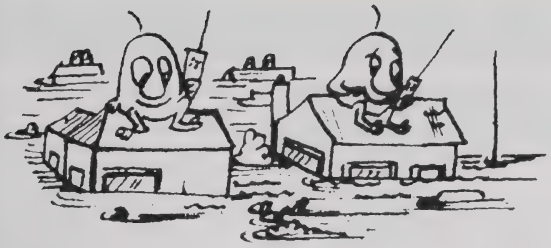
Radio regulations and licence requirements should be carefully observed when using a phone patch. Non-amateurs are not permitted to control an amateur station.

Normal traffic handled is "brief personal" messages, not business or commercial, and ONLY within New Zealand.

Phone patch equipment requires proper authorization to permit its connection to the public switched telephone network.

Packet radio

Messages sent via Packet radio should be in the spirit and tradition of amateur radio and meet the requirements of the Radio Regulations.



Care should be taken when distributing hardware, software or publications via Packet radio as it may be interpreted by others as advertising or infringing the copyright of material originated by others.

Priorities on repeaters

Repeaters allow mobile and portable stations away from the luxuries of mains power supplies and sophisticated antenna systems to increase their range. Another important purpose is to facilitate emergency communications.

Amateur Radio Emergency Corps (AREC) operators are distinguished by the use of E (emergency) call-signs, for instance ZL2EMA. If you hear these stations, give them priority.

Portable stations are those who are operating away from home, for example, a holidaymaker at a motor camp or a tramper in the ranges. They will identify themselves by using the word "portable" after the call-sign, eg: "This is ZL2QO portable listening seven-one-seven-five." If you hear these stations, give them priority—they may not have access to a telephone and could be needing to relay an urgent message.Mobile stations are actually on the move at the time of transmission. They may quite often be heard on their way to and from work at peak hours, and will identify themselves by saying: "This is ZL4HG mobile seven-ten." There are all sorts of variations on this basic theme, such as "pedestrian mobile" (on foot), "train mobile", "maritime mobile" (all at sea?) and even "stationary mobile"—surely a contradiction in terms if ever there was one! Mobile stations may need to report breakdowns, traffic delays, traffic accidents or other urgent/important pieces of information, so should be given priority if heard.

Usually a mobile or portable station will not hog the repeater but will be listening for other stations who may need to use the frequency. With a little give and take there is plenty of room for all.

STSP Repeater

(Short Term Special Purpose repeater). A repeater designed for emergency use or during special events. An example is perhaps the need to provide communication for some local public event. It's important to note that the frequencies that protected so that the repeaters can be moved about with little chance of interference with other repeaters.

The three second rule

Three seconds should be left between each over to allow other stations to access the repeater. If another station calls, let them in straight away—they may have an urgent message to transmit.

Long QSOs on repeaters

Lengthy conversations on repeaters need to be approached with care. It would not be very thoughtful to tie up a repeater for a long time during rush hour or early evening when other people are likely to be wanting to use it. Late at night is best. Where available, a 70 cm repeater that's not part of the National System might be a better choice if there is less traffic on that band and less likelihood of getting in someone else's way. Make sure that you leave three second gaps for other traffic, and it may also be a good idea to leave longer gaps, such as 10 seconds, every so often. Bear in mind, too, that even though you may make every effort to allow other stations to use the repeater if they need to, many people would rather wait until you have finished altogether. If possible, break the conversation up into two or three shorter contacts and leave the repeater free in between them.

More of a nuisance than long QSOs are long overs, especially when there are inadequate gaps between them. At busy times, keep the overs short so as to allow others, possibly with urgent messages, to access the repeater

Checking the repeater input signal

Most radios these days have a setting called "repeater reverse", "monitor" or something similar which allows the operator to check the repeater input signal, ie, the frequency the other station is actually transmitting on. If you can hear this signal, it is a good indication that simplex contact with the station is possible.

Using simplex

Home station to home station contacts should be made on simplex where possible, thus leaving the repeaters free to facilitate mobile and portable communication.

Simplex is like carrying on a conversation at the back of a room: although fewer people will hear it, it is still not private. The same standards of language

and content apply regardless of frequency.

There are eight designated FM simplex channels on both the 2 m and 70 cm bands. A list of simplex channels is given in this Call Book.

Channel terminology

Channels or frequencies that are used on VHF/UHF are not normally named by all the numbers that make up the frequency. Instead, it is more common to use an abbreviated form of frequency for convenience. For example, the common simplex frequency of 146.525 MHz is referred to as six-five-two-five, where the rule is to omit the first two digits and the decimal point. The exception to this rule is where the frequency ends in zero, in which case the zero is omitted. For example, the frequency 147.000 MHz is referred to as seven-hundred, not seven-thousand.

Simplex and repeater signal reports

Many transceivers incorporate a signal strength meter (often called an S-meter). When you are listening to a transmission on simplex, the S-meter reading will give you an indication of how strong the station's signal is. With a repeater, the situation is quite different. The repeater signal strength remains constant, regardless of the transmitting station's signal strength. The degree of signal quieting varies instead—a strong input signal produces a clear, noise-free repeater output—described as "fully quieting" or "fully limiting"—while a weak signal will be noisy. If a signal falls below a certain level, it will not hold the repeater reliably but will pulse it intermittently or drop out altogether.

Please remember that other stations rely on signal reports to determine how well their setup is working—try to make your signal reports as accurate as you can.

Other modes

FM is not the only mode used on VHF and UHF, in fact almost any mode can, and often is, used on these bands. For example, singleband (SSB) is used for weak signal and long-distance work towards the bottom end of the 2 m band. By contrast, CW or Morse is used for very exotic work such as earth-moon-earth (E-M-E) communication. As on all bands, you choose the mode that best suits your application and your desire for experimentation.

You should be aware that many of the conventions we have outlined above for repeater operation may not necessarily apply to some of these exotic modes. As an extreme case, in E-M-E operation contacts are highly structured, based on very severe time constraints. The precise procedures for all the modes are beyond the scope of this article. They are covered in the recommended references.

The 6 m band

The 6 m band (50–54 MHz), lying between the highest high-frequency band and the 2 m VHF band, provides some exciting scope for experimentation into unusual modes of radio propagation. Communications over several thousands of kilometres is possible under favourable conditions, while at other times the band can seem dead.

This bands lies close to the television Channel One, even overlaying part of this channel. For this reason a special MoC permit is required for operation in part of this band. You should consult a local Branch of NZART, FMTAG or known 6 m enthusiasts for details on the specific procedures before you begin operation.

Summary

Most of the special points relating to repeater use come under the category of commonsense considerations for others.

The Amateur's Code, first published in the ARRL Handbook, and reprinted in this Call Book, sums these up succinctly and we can do well to bear it in mind at all times.

LEARNING THE MORSE CODE

by GARY BOLD ZL1AN

Despite what old timers may say, very few of us found learning to copy Morse code easy. Until recently, ZL Hams had to pass a Morse test at 12 wpm.

Historical research shows that this required an average of about 70 hours of study, but there were wide variations. About 10 per cent of learners managed it in 10 hours or less, and another 10 per cent took more than 150 hours. A very few never managed it all no matter *how* long they persevered, and I am convinced that this was because they genuinely could not "make sense of the sounds" at this speed.

This should not surprise us. Some people are tone deaf, some cannot learn foreign languages, and some never get the hang of algebra. "Morse ability" at this level seems to be little correlated with intelligence, musical ability, sex, age, or high achievement in other areas.

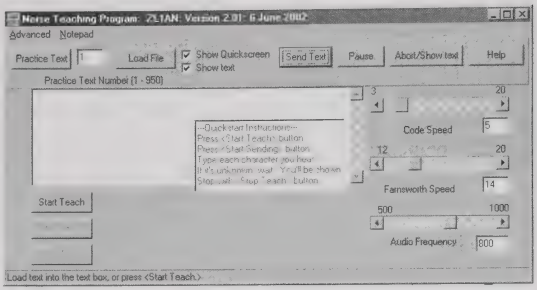
But in December 2001 the ZL Morse test speed was officially decreased to 5 wpm, and this changed the picture dramatically. The woeful and desperate letters I used to get citing stalled progress stopped abruptly. Everybody since then seems to have managed to get up to 6–8 wpm, and quite rapidly if they *learned the right way*. It's the gap from this mere "character recognition speed" to 12 wpm that apparently was the barrier, and now this has been removed. (There are scientific reasons for this, which are discussed in the literature, but we don't have space to go into them.)

What is the "right way?" *all* authorities agree that the *very worst* thing you can do is to memorize the code symbols from a printed chart. If you have one, never look at it again! Morse is an *aural* language, and *must* be learned by *listening*. This may surprise you, but the evidence is extensive and irrefutible.

I am personally convinced that the very best way to learn is from a well-written computer program. Computers are patient, non-judgemental, and very good at keeping statistics.

A suitable *free* program, written specifically to prepare you for the ZL test, is available for downloading from the NZART web-site, from a link at the bottom of the page http://www.nzart.org.nz/nzart/Exam/morse.html

You'll need a PC with Windows 95 or later, and a soundcard. The methods used are based on scientific research, with algorithms honed by feedback from users over 15 years. I know that it teaches Morse better than I can, and has got many people through Morse tests in several countries. If you have access to a computer, get it, and try it.



If you don't have a computer, your local NZART Branch may. In fact, these days older, used Windows-capable models are so cheap that *every* branch should have one for Morse practice, and for members to check out the modern digital modes. As a last resort, buy an old DOS clunker for under $100 and contact me for my earlier (DOS) learning software, which will run on anything.

There are other programs available, but some can't be recommended. If you have one that

- shows you visual symbols of the code
- teaches "opposites" (like "r" and "k") or "series" (like "eish5")
- gives only "random group" practice
- does not give you an ordered structure for learning
- teaches you to pass the US, UK or Canadian tests (which have a different format)
- sends characters at a speed *less* than 12 wpm
- delete it immediately.

A picture of the recommended program's operating window is shown in the figure above. Everything is done by pushing buttons, as described in the comprehensive "help" file supplied. This tells you exactly how to start, continue, and work up to the test speed.

"Farnsworth" Morse is used throughout, and should *always* be used for learning. This mode is named in honour of Russ Farnsworth, an early teacher who popularised the method, though he was not the first to use it. Characters are sent at a *faster* rate than for "correct" morse, with longer gaps between, to reinforce the learning of characters as "complete sound sequences", and *not* as an individually-perceived dits and dahs. Failure to teach this way is now recognised as the reason for the infamous "plateaus" that learners reached around 10–14 wpm, which old-timers may mutter darkly about. Using Farnsworth Morse, this plateau is eliminated. The next one most people strike isn't usually reached until around 40–50 wpm!

For the ZL test, which will be sent from a computer, characters are sent at a default (recommended) speed of 14 wpm, with longer spaces in between to always reduce the overall rate to 5 wpm. However you can change this at test time, and also vary the audio frequency—700 to 800 Hz is standard, but some people have notches in their hearing response, or reduced high-frequency sensitivity. However you proceed, you should learn the *numbers* at the same time as the *letters*. If you leave them "until later", they'll be harder because you won't have practiced them as much.

The program recommended above implements all of these features. The initial character teaching process is aural, and adaptive, with characters introduced at a rate governed by your own response from the keyboard, reinforced by a histogram display showing your progress. Several sessions will be necessary for this, but the program will give you a progress report at the end of each one, and you'll probabably be surprised to see your ability continually improving.

Having learned the characters, 900 plain-language texts, similar to the test texts are provided for practice. Now you can start to write down the text, as the test requires you to make a hard copy. I recommend starting at an overall speed of 3 wpm, which gives you about two seconds "thinking time" between characters, and increasing this as you gain proficiency.

As well as these texts, 50 "sample QSOs" are provided to help you get used to what you'll hear on the HF bands. However, remember that call-signs, Ham abbreviations and jargon are *not* used in the test.

Start *sending* practice *only* after you have the correct *sound* and *rhythm* of the characters firmly imprinted in your mind. Most of the candidates I've examined in the last five years have had considerable trouble attaining acceptable sending. This is invariably because they started with the wrong grip, and send tensely with *finger* instead of *wrist* movement. It's easier to see the correct way than to describe it. If at all possible, get an expert at the local Branch to show you how it's done, and get *your* action right. This is no different from, and just as important as learning the correct grip and timing in tennis or golf.

If you don't have access to a computer, all is not lost. It's still possible to learn as we all did in the old days, by listening to Morse practice sessions on the local repeater, or on the bottom end of 80 m if you have an HF receiver. Listen around between 3.550 and 3.650 MHz between 7 and 8 pm for a week, and you'll certainly hear some. They're easy to recognise because slow Morse is sent for a few minutes, followed by a "read-back" by the control station, and questions and comments by listeners.

How long, and how frequently, should you practice? Half an hour per day is fine. Some people find that before breakfast, when the mind is fresh, is better than in the evening. Others find that two or even three 20 minute sessions per day work best. In any case, stop when your mind begins to wander, or you feel you're getting overwhelmed.

When you're ready for the test the local NZART Branch, or NZART Headquarters will put you in touch with the nearest testing officers. You'll also find a list of authorised testers on the NZART website. Tests are held my mutual arrangement at a convenient time and location.

After you've passed, try to have at least a few contacts on the air. You may find, as many have done, that CW becomes quite fascinating. You'll begin to recognise the different morse rythms sent by straight keys, bugs, keyers and the keyboards of the high-speed merchants, and learn to recognise the distinctive "fists" of regular operators—which become as distinctive as voices.

You'll also find that DX contacts with foreign stations are easy to make, and they will often call *you* after you've finished with somebody else. Everybody has enough basic English for a CW contact, and many in poorer countries operate almost exclusively on CW.

THE FIRST CW QSO

by GARY BOLD ZL1AN

If you've passed the plain language Morse test without doing much, or any, listening on the air (readily possible) listening to *real* CW conversations is initially a perplexing experience. It takes some time to get used to the conventions, the Q codes, the abbreviations, the background noise, and the interference. After a while, however, you'll realise that the first few overs are usually very stylised, especially between stations who have not made contact before. The "standard information" (name, QTH, signal report, maybe power, rig, antenna) is always exchanged in a similar manner, and critical bits are always repeated. Only after a couple of overs does the conversation become less formal but even then most of us follow patterns.

How should you go about it? Here are some suggestions.

For the first QSO, it's a good idea to *arrange* a contact with some local who will send good, slow Morse, and have a strong enough signal to overcome the noise—which can be quite unsettling if you have listened only to noise-free code sent in practice sessions. And when you make contact, practise by sending the standard information just the way you would to an unknown operator. Assume that I am calling you. Here is how the conversation might go. I have included the abbreviations you'll hear frequently, and which you'll need to become familiar with.

ZL1XYZ ZL1XYZ DE ZLIAN ZLIAN K ZLIAN DE ZL1XYZ—GE OM ES TNX FER CALL—RST 589 589—NAME HR FRED FRED ES QTH AUCKLAND AUCKLAND HW? ZL1AN DE ZL1XYZ K ZL1XYZ DE ZLIAN—GE FRED—RST 579 579—NAME HR GARY GARY ES QTH AUCKLAND AUCKLAND HW? ZL1XYZ DE ZLIAN K ZLIAN DE ZL1XYZ—R—FB GARY—WX HR TODAY FINE ES TEMP 23—RG HR TS440 RUNNING 10OW—ANT IS DIPOLE AT 10 METRES—HW? ZL1AN DE ZL1XYZ K ZL1XYZ DE ZL1AN—R—FB FRED—HR WX COLD BUT NO RAIN—RIG HR YAESU FT767GX—PWR 50W—ANT ONLY END FED RANDOM WIRE WITH TUNER HI—BAND GUD TONITE—NO QRN OR QRM—HW? ZL1XYZ DE ZLIAN K ZL1AN DE ZL1XYZ—R—FB GARY—TNX FER QSO—NW CUL ES 73 GARY GN OM— ZL1AN DE ZL1XYZ SK

dit dit

dit dit

Now at 12 wpm those exchanges will have taken just over 10 minutes. That's plenty long enough for a start, so you can sign off gracefully. I guarantee you'll get a real buzz out of doing that!

Points to note

- Overs start and finish with the call-sign exchange, terminate with "K". Some operators insert "AR" before the last one, and finish with "KN"—which means "I don't want anybody to break in". But most of us enjoy having others enter our conversations.
- We used the most common standard abbreviations: GE, ON, ES, TNX, R FER, HR, HW, FB, WX, RIG, ANT, HI, W, GUD, NW, CUL, GN. "HI" is usually sent as "HEE". (dididit dit dit) If these are new to you, look them up in this callbook. They'll rapidly become intuitive, and really save time.
- We used the most common Q-code and procedural signs QTH, QRM, QRN, QSO, RST.
- We exchanged information in a very stylised manner. Between friends or ragchewers conversations will be less formal, especially after the first few overs—but you won't go wrong proceeding in just this way, and many DX conversations sound just like this.
- We each ended with a pleasant "dit dit" to say goodbye—not necessary, but you'll often hear it. (Sometimes after an interesting conversation several other "dit dits" will sound, from phantom listeners who have been following the conversation with interest).

Almost everybody initially finds it difficult to "send from the head" instead of reading from a text as you will have been doing in practice. Therefore, write down the first few overs you'll send-at least in skeleton form, so you can send from the hard copy. You'll rapidly find that this becomes unnecessary also.

You'll also probably find it more natural to initially write down everything *received*, as you will have been doing. With experience you'll begin to "read in the head" and note down only call-signs, times, signal reports, names and items to comment on. Experienced operators write up the log as they go, but at first it's much easier to scribble details down on a scratch pad and complete the log carefully afterwards.

If the conversation continues longer, what do you say? CW operators talk about almost everything. Make two more lists: one of short phrases about your job, your age, your family, your other hobbies, other modes you operate. You should ask questions also: what is your job? Do you operate PSK31/MFSK16/RTTY? How long have you been a ham? This may seem very stilted, but it will get you going. After a while these memory joggers won't be necessary either.

On the DX bands you will often hear stations calling "CQ"—more common on CW than SSB these days. At some stage you will want to send one yourself. The "3×3" format is best, that is: CQ CQ CQ DE ZL1AN ZLIAN ZLIAN repeated three times, terminated with "K". Don't be one of those irritating people who send "CQ CQ ..." 25 times before giving a call-sign. Listeners get impatient and wander off. Short calls, repeated after a few seconds are best. If you call CQ, tune around a few kHz listening for answers, as somebody may have forgetfully left his RIT engaged, and be replying outside your passband.

When 40 and above are open, DX contacts are easy since ZL stations are held to be quite rare and everybody is happy to talk to us. Such contacts are often quite short. Often you'll hear: "MY QSL SURE PS QSL VIA BURO" which means "I will certainly send you my QSL card, please send yours via the QSL bureau".

Information regarding QSL Bureau procedure will be found elsewhere in the *Call Book*, and somebody at the local Branch will explain what to do.

If you answer a CQ the accepted polite thing to do is to send back at a speed no greater than that of the sending station—unless you know that the other operator is capable of higher speeds. If somebody answers you at speeds higher than you can comfortably receive, send back "PSE QRS 12 WPM"—or whatever speed you can copy. If the other station won't do this, just sign off gracefully and talk to somebody else. There are plenty of DX stations who send around this speed, and many, CQing faster, will gladly slow down to talk to you.

You will also hear conversations at higher speeds in the 20–30 wpm range. These operators generally use electronic keyers and send very good Morse. Listen to such contacts frequently and you'll find your reading speed slowly improves. Once you have the experience to operate in this range, you'll find contacts very enjoyable as a surprising amount of information can be passed at these speeds, and the Morse is better. If you have a PC with soundcard running at 133 MHz or better, download the excellent CW reading program, "CWget", written by Sergei, UA9OSV, from http://www.dxsoft.com/.

This requires only a cable connecting the audio from the receiver to the soundcard input, and is very simple to set up. Many have found that *watching* the morse decode on the screen while *listening* to it slowly improves their head-copying ability. Sergei provides a companion morse keyboard program, "CWtype", which interfaces with the transmitter keying circuit via a simple interface connected to a port—although this may not run under more recent operating systems than Windows98.

Morse keyboards are used because at higher speeds than these it becomes difficult for ordinary mortals to send accurately with any sort of keyer. You'll hear stations conversing at 35–50 wpm using such keyboards for sending, although they will almost invariably be reading in their heads. Once you can copy at these speeds, the Morse, being perfect, is a delight to copy—it just "decodes itself". Conversations at these speeds are typically much more in "plain language" with few abbreviations and included punctuation.

Come down and join the regulars on the bottom end of 80 m! We'll be glad to talk to you!

The Amateur is Friendly ...

Slow and patient sending when requested, friendly advice and counsel to the beginner, kindly assistance, co-operation and consideration of the interests of others; these are the marks of the amateur spirit.

The Amateur's Code

ABBREVIATIONS FOR CW WORK

ABT	About
AGN	Again
ANT	Antenna
AR K	End of transmission
AR VA	Final end of transmission
AS	Wait
BCI	Broadcast interference
BCL	Broadcast listener
BK	Break; I wish to break-in (interrupt) a transmission in progress
BN	All between; been
BUG	Semi-automatic key
B4	Before
C	Yes
CL	I am closing my station; call
CPI, CPY	Copy
CQ	Calling any station
CUAGN	See you again
CUD	Could
CUL	See you later
CW	Continuous wave, i.e. radio telegraphy
DE	From
DR	Dear
DX	Distance, foreign countries
ER	Here
ES	And; &
FB	Fine business, excellent
FER	For
FM	Frequency modulation; From
GA	Go ahead, continue sending; good afternoon
GB	Goodbye
GE	Good evening
GG	Going; grounded grid
GM	Good morning
GN	Good night
GND	Ground
GUD	Good
HI	Laughter; High
HPE	Hope
HR	Here; Hear; Hour
HV: HVE	Have
HW	How
K	Go ahead
KN	specific station go ahead
MA; MILS	Milliamperes
MNI	Many
MSG	Message
N	No; North
NCS	Net control station
ND	Nothing doing
NIL	Nothing; I have nothing for you
NR	Number
NW	Now
OB	Old boy
OC	Old chap
OM	Old man
OP; OPR	Operator
OT	Old timer; Old top
PSE;	Please
PWR	Power
R	Received as transmitted; are (sometimes also used as a decimal point, e.g. 1R5)
RCVR; RX	Receiver
REF	Refer to; Referring to; Reference
RFI	Radio frequency interference
RIG	Station equipment
RPRT, REPT	Report
RPT	Repeat; I repeat
RTT; RTTY	Radioteletype
RX; RCVR	Receiver
SA	Say
SASE	Self-addressed, stamped envelope
SED	Said
SIG	Signal
SKED	Schedule
SRI	Sorry
SSB	Single sideband
SUM	Some
T	Zero (0)
THO	Though
THRU; THRO	Through
TMW	Tomorrow
TNX; TKS	Thanks
TT	That
TU; TKU	Thank you
TVI	Television interference
TX	Transmitter
TXT	Text
U	You
UR	Your; You are (sometimes YR)
URS	Yours (sometimes YRS)
VFO	Variable frequency oscillator
VY	Very
WID	With
WKD; WKG	Worked; Working
WL	Well; Will
WUD	Would
WX	Weather
XCVR	Transceiver
XMTR; TX	Transmitter
XTAL	Crystal
XYL; YF	Wife
YL	Young lady
73	Best Regards
88	Love and kisses

THE Q-CODE

QRG Will you tell me my exact frequency (or that of . . .)?
Your exact frequency (or that of . . .) is . . .kHz.

QRH Does my frequency vary?
Your frequency varies.

QRI How is the tone of my transmission?
The tone of your transmission is . . .
(1. Good; 2. Variable; 3. Bad)

QRK What is the intelligibility of my signals (or those of . . .)?
The intelligibility of your signals (or those of . . .) is . . .
(1. Bad; 2. Poor; 3. Fair; 4. Good; 5. Excellent)

QRL Are you busy?
I am busy (or I am busy with . . .) Please do not interfere.

QRM Is my transmission being interfered with?
Your transmission is being interfered with . . .
(1. Nil; 2. Slightly; 3. Moderately; 4. Severely; 5. Extremely)

QRN Are you troubled by static?
I am troubed by static . . .
(1–5 as under QRM)

QRO Shall I increase power?
Increase power.

QRP Shall I decrease power?
Decrease power.

QRQ Shall I send faster?
Send faster (. . . wpm).

QRS Shall I send more slowly?
Send more slowly (. . .wpm)

QRT Shall I stop sending?
Stop sending.

QRU Have you anything for me?
I have nothing for you.

QRV Are you ready?
I am ready.

QRW Shall I inform . . . that you are calling him on . . .kHz?
Please inform . . . that I am calling on . . .kHz.

QRX When will you call me again?
I will call you again at . . . hours (on . . .kHz).

QRZ Who is calling me?
You are being called by . . . (on . . .kHz)

QSA What is the strength of my signals (or those of . . .)?
The strength of your signals (or those of . . .) is . . .
(1. Scarcely perceptible; 2. Weak; 3. Fairly good; 4. Good; 5. Very good)

QSB Are my signals fading?
Your signals are fading.

QSD Are my signals mutilated?
Your signals are mutilated.

QSK Can you hear me between your signals and if so can I break in on your transmission?
I can hear you between my signals; break in on my transmission.

QSL Can you acknowledge receipt?
I am acknowledging receipt.

QSM Shall I repeat the last message I sent you, or some previous message?
Repeat the last message which you sent me [or message(s) number(s) . . .]

QSN Did you hear me (or . . .) on . . .kHz?
I did hear you (or . . .) on . . .kHz.

QSO Can you communicate with . . . direct or by relay?
I can communicate with . . . direct (or by relay through . . .)

QSP Will you relay to . . .?
I will relay to . . .

QST General call preceding a message addressed to all amateurs and ARRL members.

QSU Shall I send or reply on this frequency (or . . .kHz)?
Send or reply on this frequency (or . . .kHz).

QSV Shall I send a series of Vs on this frequency (or on . . .kHz)?
Send a series of Vs on this frequency (or on . . .kHz)

QSW Will you send on this frequency (or on . . .kHz)?
I am going to send on this frequency (or on . . .kHz)

QSX Will you listen to . . . on . . .kHz?
I am listing to . . . on . . .kHz.

QSY Shall I change to transmission on another frequency?
Change to transmission on another frequency (or on . . .kHz).

QSZ Shall I send each word or group more than once?
Send each word or group twice (or . . . times).

QTC How many messages have you to send?
I have . . . messages for you (or for . . .)

QTH What is your location?
My location is . . .
(QTHR—Location as per Call Book)

QTR What is the correct time?
The time is . . .

Morse Alphabet

A	• —	N	— •
B	— • • •	O	— — —
C	— • — •	P	• — — •
D	— • •	Q	— — • —
E	•	R	• — •
F	• • — •	S	• • •
G	— — •	T	—
H	• • • •	U	• • —
I	• •	V	• • • —
J	• — — —	W	• — —
K	— • —	X	— • • —
L	• — • •	Y	— • — —
M	— —	Z	— — • •

Numerals

1	• — — — —	6	— • • • •
2	• • — — —	7	— — • • •
3	• • • — —	8	— — — • •
4	• • • • —	9	— — — — •
5	• • • • •	0	— — — — —

Procedure Signals

Full stop	(.) • — • — • —
Comma	(,) — — • • — —
Colon	(:) — — — • • •
Question mark/Repeat	(?) • • — — • •
Apostrophe	(') • — — — — •
Hyphen/dash	(-) — • • • • —
Fraction bar	(/) — • • — •
Parenthesis (left hand)	(( ) — • — — •
Parenthesis (right hand)	( )) — • — — • —
Quotation marks	(") • — • • — •
Error	• • • • • • • •

Spacing and length of signal

1. A dash is equal to three dots.
2. The space between the signals which form the same letter is equal to one dot.
3. The space between two letters is equal to three dots.
4. The space between two words is equal to seven dots.

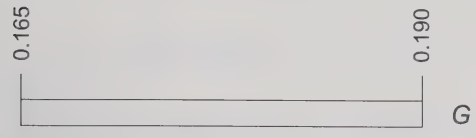
WORLD TIME CONVERSION CHART IN HOURS

Greenwich Meridian Time, London, England	Central Europe, Berlin, Geneva, Stockholm, Vienna	Athens, Cape Town, Cairo	Arabia, Iraq, Eastern Europe, Moscow, Ethiopia, Malagasy	Mauritius, Oman, Reunion Island	Central Russia, Pakistan	Calcutta, Novosibirsk Russia, Bangladesh	Laos, Sumatra, Thailand	Philippine Islands Perth Australia	Central Australia, Tokyo Japan	Eastern Australia, Melbourne, Sydney	New Caledonia	**International Date Line,** Fiji Islands, New Zealand Standard Time	Nome, Alaska, Samoa, Midway Islands	Hawaiian Islands	Eastern Alaska, Dawson	Pacific Standard Time, Los Angeles, Seattle, Juneau	Mountain Standard Time, Calgary, Denver, Phoenix	Central Standard Time, Chicago, Costa Rica	Eastern Standard Time, Montreal, New York, Peru	Atlantic Standard Time, Chile, Nova Scotia	Greenland, Rio de Janiero, Brazil	Fernando de Horonha	Azores, Cape Verde
0000	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**
0100	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night
0200	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am
0300	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am
0400	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am
0500	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am
0600	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am
0700	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am
0800	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am
0900	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am
1000	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am
1100	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am
1200	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am
1300	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon
1400	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**
1500	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**
1600	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**
1700	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**
1800	**7pm**	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**
1900	**8pm**	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**
2000	**9pm**	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**
2100	**10pm**	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**
2200	**11pm**	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**
2300	Mid Night	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	Noon	**1pm**	**2pm**	**3pm**	**4pm**	**5pm**	**6pm**	**7pm**	**8pm**	**9pm**	**10pm**

AMATEUR RADIO BAND USAGE

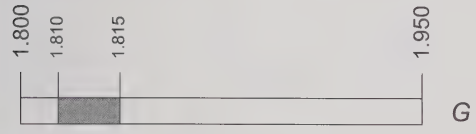
1800 metres

MOC permit required. Power limited to 5 W EIRP. See Break-In, December 1990 for details.

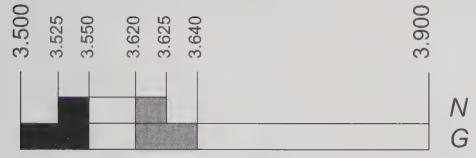


160 metres

Avoid 1.800 and 1.860 MHz. 1.850-1.950 MHz is shared with navigation.

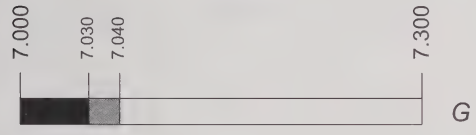


80 metres



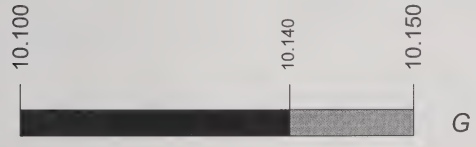
40 metres

Amateur satellite service permitted 7.0-7.1 MHz.



30 metres

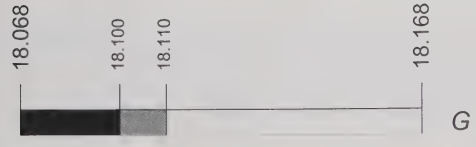
Avoid 10.130 MHz ± 3 kHz.



20 metres

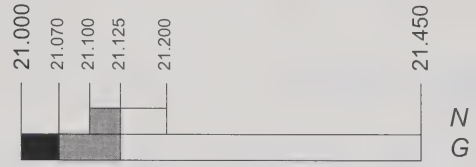
Amateur satellite service permitted 14.00-14.25 MHz

17 metres



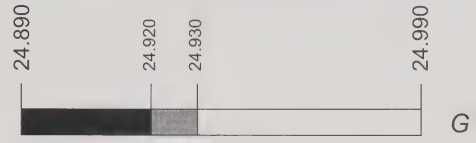
15 metres

Amateur satellite service permitted in whole band.



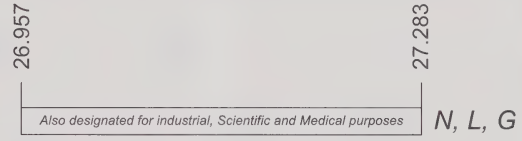
12 metres

Amateur satellite service permitted in whole band.



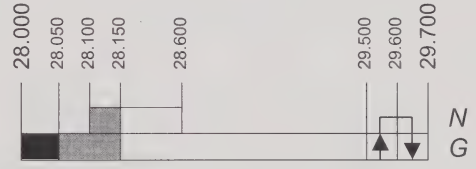
11 metres

Telemetry or telecontrol only, 5 W mean power maximum. Operation permitted by all licenced grades.



10 metres

Amateur satellite service permitted in whole band.



NOTE: This chart is taken from IARU Region 3 bandplans and should be taken as an operating guide. Always read this chart in conjunction with the table *Terms, Conditions and Restrictions Applying to Amateur Radio Apparatus Licence* from MED.

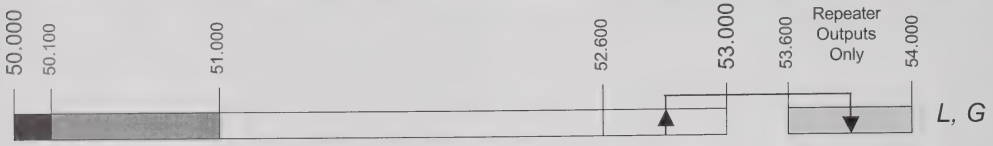
KEYS

▲ = Repeater input band segment 16 kHz bandwidth
▼ = Repeater output band segment 16 kHz bandwidth
■ = CW or modes less than 1 kHz bandwidth
□ = All modes with bandwidth less than 6 kHz
▒ = Data/packet, less than 2 kHz bandwidth
N = Novice, *L* = Limited, *G* = General class licence conditions apply
MED = Ministry of Economic Development

Prepared by FMTAG May 2000

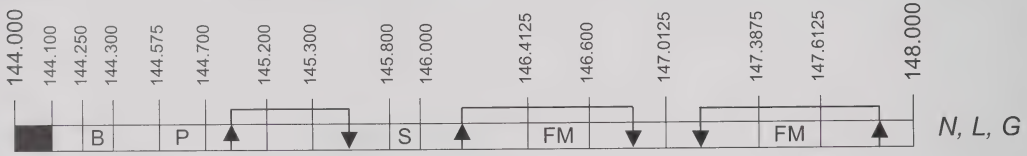
6 metres

Special conditions apply to the use of this band. Operation may require an MOC permit. Refer to *Terms, Conditions and Restrictions Applying to Amateur Radio Apparatus Licence* for more information. SSB/CW international calling 50.11 MHz, Oceania 52.05 MHz, FM calling 52.525 MHz. 53.6-54 MHz available for MOC approved fixed transmitters.



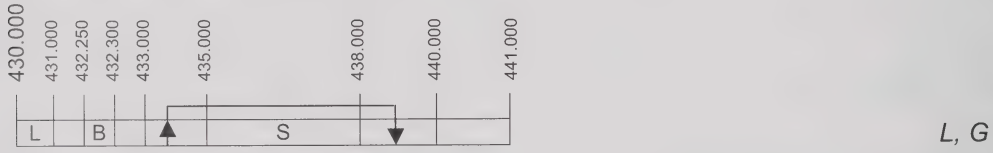
2 metres

Amateur satellite service permitted in the range 144-146 MHz. Oceania SSB calling 144.1 MHz, ZL calling 144.2 MHz, FM calling 144.5 and 146.475 MHz. Primary packet/digipeater 144.65 MHz, other frequencies available. Below 147 MHz, repeater offset -600 kHz, otherwise +600 kHz.



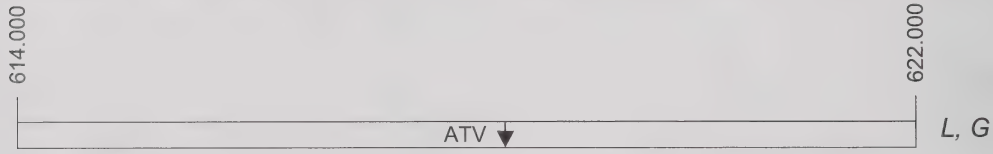
70 cm

Amateur satellite permitted in the range 435-438 MHz. SSB calling 432.2 MHz, FM calling 432.5 MHz, beacons 432.25-432.30 MHz. Primary packet/digipeater 432.65 MHz, other frequencies available. Repeater offsets -5 MHz in most cases, +5 MHz otherwise.



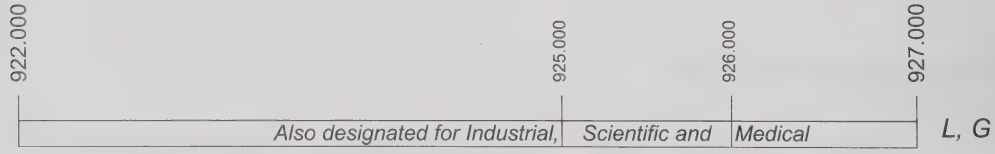
50 cm

SSB calling 621.2 MHz, FM calling 621.5 MHz, packet 621.65 MHz. ATV vision carrier 615.25 MHz ITU(R) system G.



32 cm

Power 25 W mean ERP. SSB calling 925.2 MHz, FM calling 925.5 MHz. Beacons 925.25-925.30 MHz.



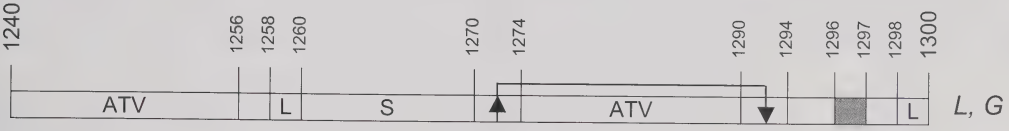
NOTE: This chart is taken from IARU Region 3 bandplans and should be taken as an operating guide. Always read this chart in conjunction with the table *Terms, Conditions and Restrictions Applying to Amateur Radio Apparatus Licence* from MED.

KEYS

▲ = Repeater input band segment
▼ = Repeater output band segment
■ = CW or modes less than 1 kHz bandwidth
□ = All modes
■ = Data/packet, less than 6 kHz bandwidth
□ = Repeater outputs only
N = Novice, *L* = Limited, *G* = General class licence conditions apply
MED = Ministry of Economic Development
ATV = Amateur Television, S = Satellites, B = Beacons, P = Packet, FM = FM simplex, L = Link
Narrow band segment bandplan for microwave bands detailed in *Simplex and Calling Frequencies*
Prepared by FMTAG May 2000

23 cm

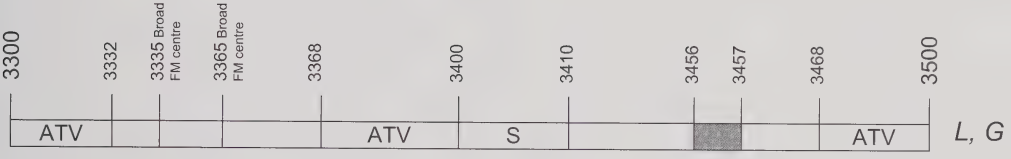
SSB calling 1296.2 MHz, FM calling 1296.5 MHz. Beacons 1296.25-1296.30 MHz. ATV video carriers 1241.25, 1249.25, 1275.25 and 1283.25 MHz ITU(R) system G. Repeater-20 MHz offset. Amateur satellite service in band 1260-1270 MHz, uplink only.



12 cm

Standard 1 MHz narrow band segment 2424-2425 MHz. SSB calling 2424.2 MHz, FM calling 2424.5 MHz. Beacons 2424.25-2424.30 MHz. ATV in segments 2408-2422 and 2432-2446 MHz, ITU(R) system B. Repeaters -20 MHz offset. Amateur satellite service in 2400-2450 MHz, downlink.

9 cm

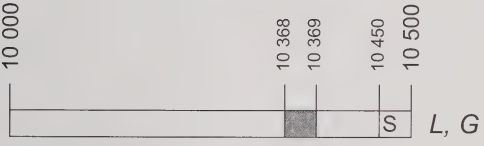


5 cm

6 mm

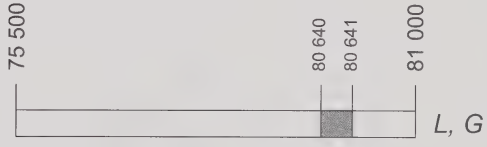
Amateur satellite available on the entire band.

3 cm

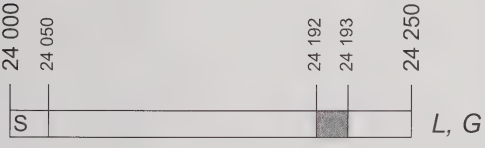


4 mm

Amateur satellite available on the entire band.



1.2 cm



NOTE: This chart is taken from IARU Region 3 bandplans and should be taken as an operating guide. Always read this chart in conjunction with the table *Terms, Conditions and Restrictions Applying to Amateur Radio Apparatus Licence* from MED.

KEYS

▲ = Repeater input band segment
▼ = Repeater output band segment
▭ = All modes
▬ = Standard 1 MHz narrow band segment
L = Limited, *G* = General class licence conditions apply
MED = Ministry of Economic Development
ATV = Amateur Television, S = Satellites, L = Link
Narrow band segment bandplan for microwave bands detailed in *Simplex and Calling Frequencies*
Prepared by FMTAG May 2000

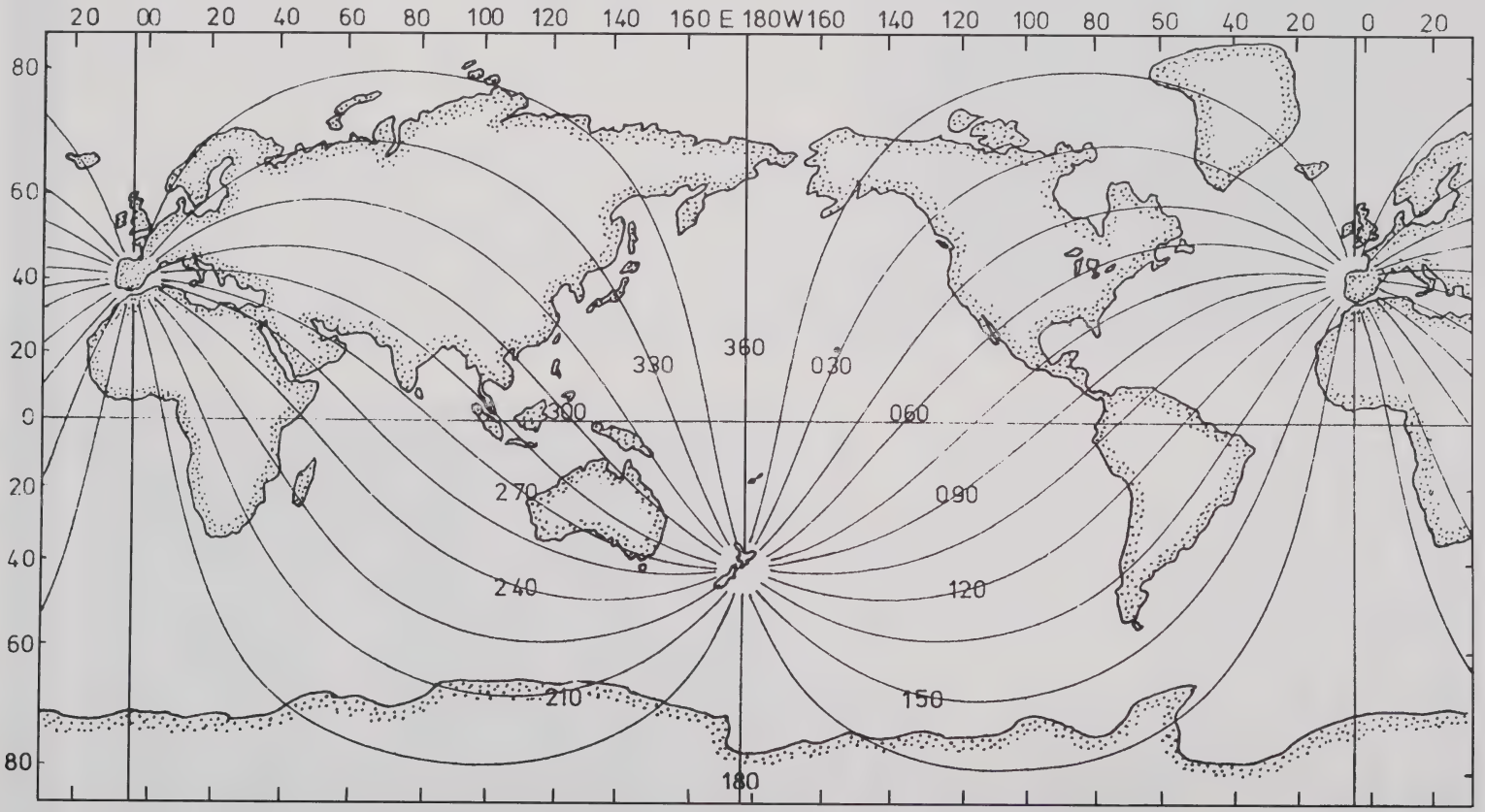
Great Circle DX Bearings Based on Wellington

prepared by RON MURPHY ZL1AMM

Listed below are the approximate short path bearings based on the great circle map centred on Wellington. These listings, based on true north, will point your directional antenna in the appropriate direction before final adjustment depending on the sharpness to which the antenna was installed. The long path bearings are about 180 degrees in the opposite direction.

A good inexpensive Azimuth (great circle on Wellington) map, number NZMS 47, is obtainable from metropolitan offices of the Department of Survey and Land Information. Available from overseas are several computer-derived DX beam headings.

A2	210	FJ, FS	100	KH2	320	S9	205	VU	270	3V	250
A3	20	FK	340	KH3	20	SM, SK, SL	330	VU7A	285	3W, XV	295
A4	270	FM	95	KH4	N	SP	310	VU7L	275	3X	155
A5	295	FO	60	KH5, KH5K	30	ST, ST0	250			3Y, Bouvet	185
A6	275	FP	65	KH6	25	SU	260	W, K, N, A	60	3Y, Peter I	155
A7	275	FR	235	KH7	N	SV, J4	270				
A9	275	FS	100	KH8	20			XE	70	4E7, DU	310
A, K, N, W	60	FT5W	220	KH9	350	T2	N	XF4	70	4J	330
AP	280	FT5X	225	KH0	320	T30	N	XT	180	4K2/FJL	N
		FT5Y	180	KL	15	T31	20	XU	295	4K5–9	290
BS7H, BS0H	290	FT5Z	230	KP1	90	T32	30	XV, 3W	295	4L	290
BV9P	310	FW	N	KP2	90	T33	N	XW	295	4K0	330
BV, BO	315	FY	115	KP3, KP4	90	T5	245	XX	305	4S	280
BY, BA, BD, BG	315			KP5	90	T7	280	XY, XZ	290	4U/ITU	300
		G, GX	345	KX	350	T8	320			4U/UN	65
C2	N	GD, GT	5			T9	285	YA	290	4W	255
C3	280	GI, GN	15	LA	335	TA	280	YB, YC, YD	300	4X, 4Z	265
C5	155	GJ, GH	345	LU	135	TF	15	YI	270		
C6	95	GM, GS	N	LX	325	TG	90	YJ	330	5A	260
C9	230	GU, GP	345	LY	320	TI	90	YK	270	5B	270
CE	130	GW, GC	350	LZ	285	TI9	90	YL	320	5H	230
CE0	110, 120					TJ	205	YN	90	5N	195
CO	80	H4	335	M, MX	345	TK	230	YO	285	5R	225
CN	220	HA	300	MD	5	TL	205	YS	90	5T	160
CP	125	HB	300	MI	15	TN	210	YU1, 6, 7, 8	285	5U	175
CT	130	HB0	300	MJ	345	TR	200	YV	100	5V	175
CT3	140	HC	100	MM	N	TT	220	YV0	100	5W	20
CU2, CT2	90	HC8	90	MU	345	TU	160			5X	235
CX	140	HH	90	MW	350	TY	190	ZA	275	5Z	235
CY9, 0	65	HI	90			TZ	160	ZB	180		
		HK	100	N, K, W, A	60			ZC	270	6W	150
D2, 3	210	HK0	90	OA	110	UA-UI, R	320	ZD7	180	6Y	90
D4	150	HL	325	OD	275	UJ-UM	290	ZD8	170		
D6	230	HP	90	OE	305	UN-UQ	290	ZD9	170	7O	255/275
DA to DR	320	HR	90	OH, OJ	330	UR-UZ, EM-EO	300	Z2	220	7P	220
DU, 4E7	310	HS, E2	285	OK, OL, OM	310			Z3	285	7Q	230
		HV	280	ON	330	V2	95	ZF	90	7X	240
E2, HS	285	HZ, 7Z	260	OX	20	V3	85	ZK1N	50	7Z, HZ	260
E3	245			OY	N	V4	95	ZK1S	60		
EA	260	I	280	OZ	330	V5	200	ZK2	N	8P	90
EA6	250	IS	270			V6	320	ZK3	30	8Q	275
EA8	140			P2	310	V7	350	ZL7	110	8R	110
EA9	180	J2	245	P4	95	V85	290	ZL8	30		
EI	10	J3	95	P5	325	VE	50	ZL9	190	9A	285
EK	290	J4, SV	270	PA	330	VK	280	ZP	125	9G	185
EL	180	J5	155	PJ	95	VK9C	270	ZS	210	9H	250
EM-EO, UR-UZ	300	J6	95	PJ7	90	VK9L	290	ZS8	210	9I, 9J	220
EP	280	J7	95	PY	140	VK9M	330			9K	270
ER	285	J8	95	PY0	125, 145	VK9N	340	1A0	280	9L	165
ES	320	JA	335	PZ	100	VK9W	320	1S	285	9M2, 4	285
ET, 9F	245	JD	335			VK9X	275			9M6, 8	285
EU, EV, EW	310	JT	325	RA	see UA	VK0H	220	3A	295	9N	295
EX	290	JW	5	R1A	180	VK0M	210	3B6	235	9Q	230
EY	290	JX	5	R1F	N	VP2	95	3B7	235	9U	230
EZ	290	JY	265	R1M	330	VP5	95	3B8	235	9V	285
						VP8	150, 180	3B9	230	9X	230
F	310	K, N, A, W	60	S0	140	VP9	80	3C	205	9Y	100
FC	230	KC6	320	S2	290	VQ9	265	3C0	205		
FG	100	KG4	90	S5	285	VR2, VS9	305	3D2	N		
FH	230	KH1	15	S7	240	VR6	90	3DA0	220	Antarctica	180



GREAT CIRCLE BEARINGS FROM WELLINGTON.

information provided by
TREVOR KING ZL2AKW and MIKE KERR ZL2BCW

QRP operation has a long history in New Zealand, not only with home stations and DX successes, but also for portable use in the backcountry.

The origins

QRP is an abbreviation from the official list of Q-codes that were developed to speed up communication, especially between stations that spoke different languages. These codes go back to the days of Spark transmitters.

QRP? = Shall I decrease transmitter power?

QRP, with no question mark = Decrease transmitter power!

How much is QRP?

These days it is much easier to measure output power than perform meaningful and accurate input calculations.

In amateur radio circles QRP means operating a transmitter at a level of 5W RF output or less, on any frequency, using any mode. There are even QRPP stations operating with a power output of only milliwatts.

Sources

QRP transmitting and receiving equipment is now available commercially. Traditionally QRP gear has been home made, and many hams still prefer to build their own equipment from kits or first principles. Others use veteran low-power war surplus equipment from the 1940s, and still others recreate 1920s and 1930s equipment from vintage parts bought at junk sales.

Forum

Break-In has a regular QRP column to cater for this interest. Back copies of the magazine contain many articles on all aspects of QRP equipment and operation.

Events

The premium event for ZL QRP operators is the Sangster Shield. In addition, Straight Key Night and Vintage Radio events like SPAM Military Radio Day attract numerous QRP enthusiasts.

Most NZART Annual Conferences have a "QRP Forum" that is well attended and concentrates mainly on the constructional aspects of home made QRP equipment.

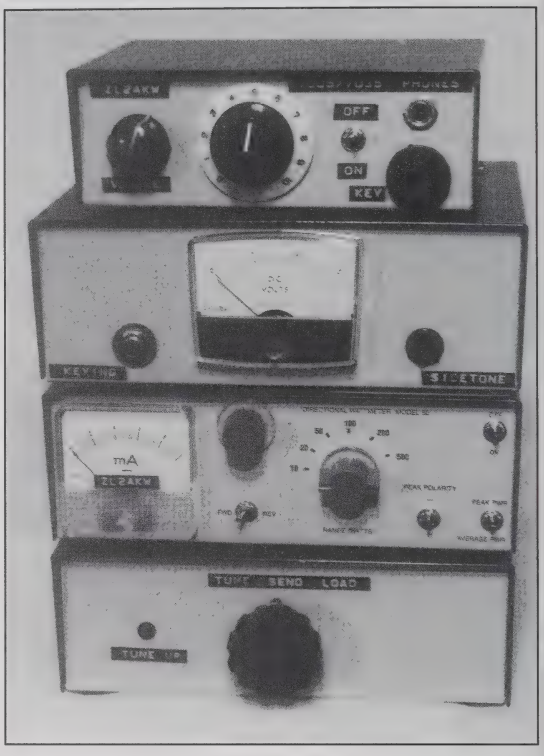
Favourable circumstances

New Zealand is a long way from large radio amateur populations, which naturally reside in main population centres overseas, with local QRM to match. One unique advantage we have, is that interference of all kinds is generally lower than overseas, so ZL operators are able to provide a "real DX contact" for overseas amateurs. Of course, making it a to-way QRP contact is the ultimate goal.

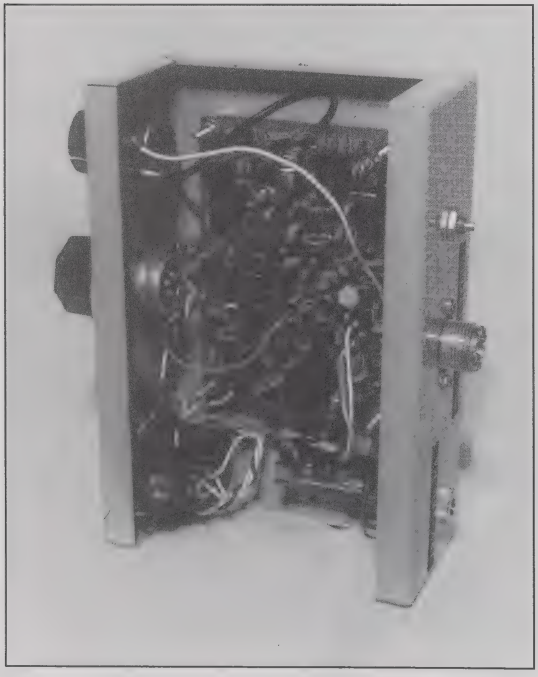
The emergence of new modes, such as PSK31 can sharply increase the "reach" of QRP stations while still maintaining the practicability of building the equipment at home.

The buzz

There are many definitions of what QRP is, but one thing that every QRPer agrees with, is that QRP operation provides a real "zing" to amateur radio.



40/40 QRP transceiver.
Interface unit for any QRP transmitter to any receiver and antenna, of your choice.
Straight line radio frequency wattmeter.
QT Silent Tune-Up bridge and 50Ω load.



40/40 QRP homebrew transceiver inside view.

CHANGE OF ADDRESS NOTIFICATION

Please send to the Business Manager any details of your new address to retain your membership benefits, including the automatic inclusion of your details in Call Book (published annually).

If you DO NOT wish your details to be published please indicate this fact clearly.

REMEMBER: If you change your address you mustnotify the nearest office of the Ministry of Economic Development (Radio Spectrum Management), AND the Business Manager NZART.

Prepared by the late
JOHN GABITES
ZL2AQ

Communication with neighbouring stations by ground waves is not affected by conditions in the upper atmosphere. In contrast all HF communications beyond, at the most, a few tens of kilometres depend on the presence of a layer of gasses so strongly ionized as to act as a reflector for skywave signals. These signals projected at the correct angle, will be directed down to the desired destination, either in one hop or by successive hops around the curvature of the earth.

The ionization of the atmospheric gasses is renewed each day by ultra-violet radiation from the sun. In the lowest layers (D and E) the density of ions decreases rapidly as the sun goes down, but in the higher F region the ionization lasts longer and diminishes slowly through the night. The strength of the ionizing radiation itself is liable to fluctuate from day to day and week to week. Observatories monitor the state of the ionosphere by sweeping through the HF spectrum with pulses directed vertically upward, timing the echoes to determine the virtual height of the reflecting layer, and noting the critical penetration frequency (f_0) above which reflections cease.

Radio waves impinging obliquely on the ionized layer can be reflected on higher frequencies that are related to f_0 by an abliquity factor. Thus, for example, with an F layer at 300 km, the required radiation angle above the horizon and the maximum usable frequency (MUF) for various distances would be:

0 km	90°	1.0(f_0)
500 km	48°	1.3(f_0)
1,000 km	28°	1.9(f_0)
2,000 km	14°	2.7(f_0)
3,000 km	4°	3.4(f_0)

Signals suffer power loss at every reflection and at every passage through the daytime D and E regions. The lower the frequency the more severe the loss—halving the frequency quadruples the loss. The lowest frequency to give a readable signal at the other end, in spite of losses, depends in part on the effective power radiated at the appropriate angle. Thus the lowest usable frequency (LUF) or absorption-limited frequency (ALF) is not a sharply defined limit applying to all stations like the MUF.

The IARU-NCDXF worldwide network of beacons in continuous operation on five amateur bands, and cycling through four power levels, provides a convenient means of sampling current propagation conditions to other parts of the world (see Figure 1). The full 18-beacon sequence on any band can be scanned in only three minutes.

For planning ahead it is usual to make use of predictions of the MUF and LUF based on the historical data provided by ionospheric observatories and averaged for different levels of solar activity. For a long time the main indicator of solar activity was the sunspot number, but the measurements of microwave radiation from the sun, begun at Ottawa in 1946, have proved more relevant to ionospheric conditions. The solar flux index is the measurement made at local noon (now at Penticton, British Colombia) on 2.8 GHz. This is not the ionizing radiation, but is something measurable at the ground that seems to vary in parallel with the ionizing radiations that maintain the ionosphere.

If an estimate can be made of the level of solar activity likely to apply at the time of interest, computers can sort through the world maps of averaged past data and extract the most probable MUFs at the required reflection points, at the relevant time, month and activity level. With considerable simplification, some very convenient programs have been produced for PCs. Most try to predict median values of MUF for a path, but to allow for the normal day-to-day variations of ionospheric conditions over a month many also indicate the expected upper decile (UD) value of MUF (likely to be exceeded on about 10 per cent of days) and the lower decile (LD) values (below which the MUF is likely to fall on the worst 10 per cent of days). Commercial stations normally set their frequencies some distance below the expected median MUFs to minimize the disruptions of schedules on "bad" days, and for this purpose often designate the LD as their optimum working frequency (OWF). This, however, is a compromise frequency—the best propagation is normally to be found just below the actual MUF at the time, which on a "good" day may be 15 per cent or more above the predicted median MUF. Although predictions of median MUFs such as those in Break-In may not always fit conditions on particular days very well, the predictions will still give useful indications of the best and worst times to try to communicate with distant places.

Most HF communications within New Zealand are by single-hop sky wave, requiring a medium to high take-off angle. Most amateur contacts need radiation angles above 40–45°, few need radiation below 30° to reach the remainder of the country. At the steep angles needed for nearby communications, signals on the higher frequency bands will penetrate the ionized layers and be lost to space, though lower-angled rays may still be reaching more distant stations. This skip over surrounding areas is most frequent and extensive when the ionization is weak, notably at night, in the winter, and in the years of low solar activity. Amateurs (including AREC) can usually keep nearby contacts on the 3.5 MHz band, while SAR and CD can change to their lower "night" frequencies. In contrast to local communications, long distance contacts are favoured by the lowest practicable radiation angles in order to maximuze the usable frequency, minimize the number of hops needed, and avoid unnecessary absorption losses.

Bursts of X-rays from solar flares can cause immediate intensifiction of ionization, notably in the D-region, over sunlit portions of the earth, causing sudden shortwave fadeouts. Clouds of charged particles ejected from the sun, and travelling more slowly, may be reported by satellite as a satellite proton event (SPE); they can interact with the earth's magnetic field, causing distortions of the field that are indicated by increases in the three-hourly geomagnetic K-index and the 24-hourly A-index, and themselves be deflected towards the magnetic poles to produce enhanced auroral displays, degraded radio propagation across the auroral zone, and perhaps severe polar cap absorption (PCA).

Summary

For long distance contacts use the lowest practicable radiation angle and the highest frequency usable at the time; listen to the beacons for an overview of propagation in different directions (and take great care not to transmit on the beacon frequencies!); listen to the hourly broadcasts from WWV or WWVH for the solar flux and K and A indices (and do not expect great propagation across the auroral regions if the geomagnetic field is disturbed); consult monthly predictions of median MUFs in Break-In or on PCs but be prepared for MUFs to be 15 per cent or more above the predicted medians on good days and 15 per cent or more below on bad days.

For domestic communications within New Zealand expect to do best with a medium to high radiation angle and a frequency low enough to avoid skip over the desired paths, but still use the highest band that is usable in order to minimize losses and multipath fading.

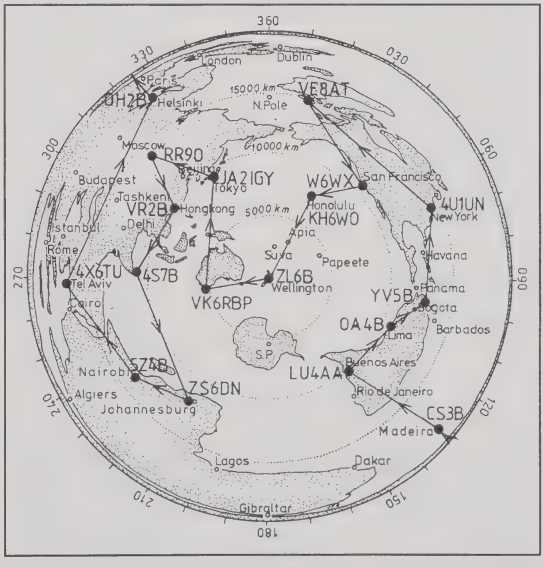


Figure 1. IARU-NCDXF Beacons. Continuous sequences on five bands: 14.100, 18.110, 21.150, 24.930 and 28.200 MHz. Each 10-second transmissions: call-sign, then four dashes on descending power (100 W, 10 W, 1 W, 0.1 W).

ALLOCATION OF INTERNATIONAL CALL-SIGNS

AAA-ALZ United States of America
AMA-AOZ Spain
APA-ASZ Pakistan
ATA-AWZ India
AXA-AXZ Australia
AYA-AZZ Argentine Republic
A2A-A2Z Botswana
A3A-A3Z Tonga
A4A-A4Z Oman
A5A-A5Z Bhutan
A6A-A6Z United Arab Emirates
A7A-A7Z Qatar
A8A-A8Z Liberia
A9A-A9Z Bahrain

BAA-BZZ China

CAA-CEZ Chile
CFA-CKZ Canada
CLA-CMZ Cuba
CNA-CNZ Morocco
COA-COZ Cuba
CPA-CPZ Bolivia
CQA-CUZ Portugal
CVA-CXZ Uruguay
CYA-CZZ Canada
C2A-C2Z Nauru
C3A-C3Z Andorra
C4A-C4Z Cyprus
C5A-C5Z Gambia
C6A-C6Z Bahamas
C7A-C7Z World Meteorological Organization
C8A-C9Z Mozambique

DAA-DRZ Germany
DSA-DTZ Korea
DUA-DZZ Philippines
D2A-D3Z Angola
D4A-D4Z Cape Verde
D5A-D5Z Liberia
D6A-D6Z Comoros
D7A-D9Z Korea

EAA-EHZ Spain
EIA-EJZ Ireland
EKA-EKZ Armenia
ELA-ELZ Liberia
EMA-EOZ Ukraine
EPA-EQZ Iran
ERA-ERZ Moldova
ESA-ESZ Estonia
ETA-ETZ Ethiopia
EUA-EWZ Belarus
EXA-EXZ Kyrgyz Republic
EYA-EYZ Tajikistan
EZA-EZZ Turkmenistan
E2A-E2Z Thailand
E3A-E3Z Eritrea
E4A-E4Z Palestine Authority

FAA-FZZ France

GAA-GZZ United Kingdom

HAA-HAZ Hungary
HBA-HBZ Switzerland
HCA-HDZ Ecuador
HEA-HEZ Switzerland
HFA-HFZ Poland
HGA-HGZ Hungary
HHA-HHZ Haiti
HIA-HIZ Dominican Republic
HJA-HKZ Colombia
HLA-HLZ Korea
HMA-HMZ Korea
HNA-HNZ Iraq
HOA-HPZ Panama
HQA-HRZ Honduras
HSA-HSZ Thailand
HTA-HTZ Nicaragua
HUA-HUZ El Salvador
HVA-HVZ Vatican City State
HWA-HYZ France
HZA-HZZ Saudi Arabia
H2A-H2Z Cyprus
H3A-H3Z Panama
H4A-H4Z Solomon Islands
H6A-H7Z Nicaragua
H8A-H9Z Panama

IAA-IZZ Italy

JAA-JSZ Japan
JTA-JVZ Mongolia
JWA-JXZ Norway
JYA-JYZ Jordan
JZA-JZZ Indonesia
J2A-J2Z Djibouti
J3A-J3Z Grenada
J4A-J4Z Greece
J5A-J5Z Guinea-Bissau
J6A-J6Z Saint Lucia
J7A-J7Z Dominica
J8A-J8Z Saint Vincent and Grenadines

KAA-KZZ United States of America

LAA-LNZ Norway
LOA-LWZ Argentine Republic
LXA-LXZ Luxembourg
LYA-LYZ Lithuania
LZA-LZZ Bulgaria
L2A-L9Z Argentine Republic

MAA-MZZ United Kingdom

NAA-NZZ United States of America

OAA-OCZ Peru
ODA-ODZ Lebanon
OEA-OEZ Austria
OFA-OJZ Finland
OKA-OLZ Czech Republic
OMA-OMZ Slovak Republic
ONA-OTZ Belgium
OUA-OZZ Denmark

PAA-PIZ Netherlands
PJA-PJZ Netherlands Antilles
PKA-POZ Indonesia
PPA-PYZ Brazil
PZA-PZZ Suriname
P2A-P2Z Papua New Guinea
P3A-P3Z Cyprus
P4A-P4Z Aruba
P5A-P9Z Korea

RAA-RZZ Russian Federation

SAA-SMZ Sweden
SNA-SRZ Poland
SSA-SSM Egypt
SSN-STZ Sudan
SUA-SUZ Egypt
SVA-SZZ Greece
S2A-S3Z Bangladesh
S5A-S5Z Slovenia
S6A-S6Z Singapore
S7A-S7Z Seychelles
S8A-S8Z South Africa
S9A-S9Z Sao Tome and Principe

TAA-TCZ Turkey
TDA-TDZ Guatemala
TEA-TEZ Costa Rica
TFA-TFZ Iceland
TGA-TGZ Guatemala
THA-THZ France
TIA-TIZ Costa Rica
TJA-TJZ Cameroon
TKA-TKZ France
TLA-TLZ Central Africa
TMA-TMZ France
TNA-TNZ Congo
TOA-TQZ France
TRA-TRZ Gabon
TSA-TSZ Tunisia
TTA-TTZ Chad
TUA-TUZ Côte d'Ivoire
TVA-TXZ France
TYA-TYZ Benin
TZA-TZZ Mali
T2A-T2Z Tuvalu
T3A-T3Z Kiribati
T4A-T4Z Cuba
T5A-T5Z Somali
T6A-T6Z Afghanistan
T7A-T7Z San Marino
T8A-T8Z Palau
T9A-T9Z Bosnia and Herzegovina

UAA-UIZ Russian Federation
UJA-UMZ Uzbekistan
UNA-UQZ Kazakhstan
URA-UZZ Ukraine

VAA-VGZ Canada
VHA-VNZ Australia
VOA-VOZ Canada
VPA-VQZ United Kingdom
VRA-VRZ China / Hong Kong
VSA-VSZ United Kingdom
VTA-VWZ India
VXA-VYZ Canada
VZA-VZZ Australia
V2A-V2Z Antigua and Barbuda
V3A-V3Z Belize
V4A-V4Z Saint Kitts and Nevis
V5A-V5Z Namibia
V6A-V6Z Micronesia
V7A-V7Z Marshall Islands
V8A-V8Z Brunei Darussalam

WAA-WZZ United States of America

XAA-XIZ Mexico
XJA-XOZ Canada
XPA-XPZ Denmark
XQA-XRZ Chile
XSA-XSZ China
XTA-XTZ Burkina Faso
XUA-XUZ Cambodia
XVA-XVZ Viet Nam
XWA-XWZ Lao People's Democratic Republic
XXA-XXZ Portugal
XYA-XZZ Myanmar

YAA-YAZ Afghanistan
YBA-YHZ Indonesia
YIA-YIZ Iraq
YJA-YJZ Vanuatu
YKA-YKZ Syrian Arab Republic
YLA-YLZ Latvia

YMA-YMZ	Turkey
YNA-YNZ	Nicaragua
YOA-YRZ	Romania
YSA-YSZ	El Salvador
YTA-YUZ	Yugoslavia
YVA-YYZ	Venezuela
YZA-YZZ	Yugoslavia
Y2A-Y9Z	Germany
ZAA-ZAZ	Albania
ZBA-ZJZ	United Kingdom
ZKA-ZMZ	New Zealand
ZNA-ZOZ	United Kingdom
ZPA-ZPZ	Paraguay
ZQA-ZQZ	United Kingdom
ZRA-ZUZ	South Africa
ZVA-ZZZ	Brazil
Z2A-Z2Z	Zimbabwe
Z3A-Z3Z	Macedonia
2AA-2ZZ	United Kingdom
3AA-3AZ	Monaco
3BA-3BZ	Mauritius
3CA-3CZ	Equatorial Guinea
3DA-3DM	Swaziland
3DN-3DZ	Fiji
3EA-3FZ	Panama
3GA-3GZ	Chile
3HA-3UZ	China
3VA-3VZ	Tunisia
3WA-3WZ	Viet Nam
3XA-3XZ	Guinea
3YA-3YZ	Norway
3ZA-3ZZ	Poland
4AA-4CZ	Mexico
4DA-4IZ	Philippines
4JA-4KZ	Azerbaijani Republic
4LA-4LZ	Georgia
4MA-4MZ	Venezuela
4NA-4OZ	Yugoslavia
4PA-4SZ	Sri Lanka
4TA-4TZ	Peru
4UA-4UZ	United Nations
4VA-4VZ	Haiti
4WA-4WZ	United Nations
4XA-4XZ	Israel
4YA-4YZ	International Civil Aviation Organization
4ZA-4ZZ	Israel
5AA-5AZ	Libya
5BA-5BZ	Cyprus
5CA-5GZ	Morocco
5HA-5IZ	Tanzania
5JA-5KZ	Colombia
5LA-5MZ	Liberia
5NA-5OZ	Nigeria
5PA-5QZ	Denmark
5RA-5SZ	Madagascar
5TA-5TZ	Mauritania
5UA-5UZ	Niger
5VA-5VZ	Togolese Republic
5WA-5WZ	Western Samoa
5XA-5XZ	Uganda
5YA-5ZZ	Kenya
6AA-6BZ	Egypt
6CA-6CZ	Syrian
6DA-6JZ	Mexico
6KA-6NZ	Korea
6OA-6OZ	Somali
6PA-6SZ	Pakistan
6TA-6UZ	Sudan
6VA-6WZ	Senegal
6XA-6XZ	Madagascar
6YA-6YZ	Jamaica
6ZA-6ZZ	Liberia
7AA-7IZ	Indonesia
7JA-7NZ	Japan
7OA-7OZ	Yemen
7PA-7PZ	Lesotho
7QA-7QZ	Malawi
7RA-7RZ	Algeria
7SA-7SZ	Sweden
7TA-7YZ	Algeria
7ZA-7ZZ	Saudi Arabia
8AA-8IZ	Indonesia
8JA-8NZ	Japan
8OA-8OZ	Botswana
8PA-8PZ	Barbados
8QA-8QZ	Maldives
8RA-8RZ	Guyana
8SA-8SZ	Sweden
8TA-8YZ	India
8ZA-8ZZ	Saudi Arabia
9AA-9AZ	Croatia
9BA-9DZ	Iran
9EA-9FZ	Ethiopia
9GA-9GZ	Ghana
9HA-9HZ	Malta
9IA-9JZ	Zambia
9KA-9KZ	Kuwait
9LA-9LZ	Sierra Leone
9MA-9MZ	Malaysia
9NA-9NZ	Nepal
9OA-9TZ	Democratic Republic of the Congo
9UA-9UZ	Burundi
9VA-9VZ	Singapore
9WA-9WZ	Malaysia
9XA-9XZ	Rwandese Republic
9YA-9ZZ	Trinidad and Tobago

THE PHONETIC ALPHABET

The Phonetic Alphabet should be used with considerable discretion. Its primary purpose is to obviate confusion between letters and figures which have similar sounds, e.g.: BCDEGPTV, AKJ, MN, QU, FS, TWO, THREE, FIVE, NINE.

The possibility of confusion increases greatly under adverse operating conditions such as adjacent channel interference, high level of acoustic and electrical background noise, poor audio quality (including inferior articulation), fading, etc. Under these conditions more frequent use of the phonetic code may be necessary. However, when there is a complete absence of interference of any kind and signals are perfectly readable, phonetics can be eliminated except for difficult place names, proper names, and unusual words. Regardless of the quality of the circuit phonetics should always be used for call-signs during the establishment of initial contact. It is important to memorize the code thoroughly and to avoid using substitute words.

Phonetic Alphabet

Some words are likely to be misunderstood when passed over radio telephone circuits, due to phonetic similarity. A number of phonetic alphabets have been introduced to overcome this. The following being the most generally accepted at the present time.

A	ALFA	AL fah
B	BRAVO	BRAH voh
C	CHARLIE	CHAR lee
D	DELTA	DELL tah
E	ECHO	ECK oh
F	FOXTROT	FOKS trot
G	GOLF	GOLF
H	HOTEL	hoh TELL
I	INDIA	IN dee ah
J	JULIET	JEW lee ETT
K	KILO	KEY loh
L	LIMA	LEE mah
M	MIKE	MIKE
N	NOVEMBER	no VEM ber
O	OSCAR	OSS cah
P	PAPA	pah PAH
Q	QUEBEC	Kwee BECK or Key BECK
R	ROMEO	ROW me oh
S	SIERRA	See AIR rah
T	TANGO	TANG go
U	UNIFORM	YOU nee form or OO nee form
V	VICTOR	VIK tor
W	WHISKEY	WISS key
X	X-RAY	ECKS ray
Y	YANKEE	YANG kee
Z	ZULU	ZOO loo

1 WUN	2 TOO	3 thuh-REE	4 FO-wer	5 FI-yiv
6 SIX	7 seVEN	8 AIT	9 NI-ner	0 ZERO

DX CENTURY CLUB COUNTRIES LIST

Current Countries Total 332—Revised October 1999—Reproduced courtesy ARRL

Prefix	Entity	Continent	ZONE ITU	ZONE CQ
1S[1]	Spratly Is.	AS	50	26
1A0[1]	Sov. Mil. Order of Malta	EU	28	15
3A	Monaco	EU	27	14
3B6, 7	Agalega & St. Brandon	AF	53	39
3B8	Mauritius	AF	53	39
3B9	Rodrigues I.	AF	53	39
3C	Equatorial Guinea	AF	47	36
3C0	Annobon I.	AF	52	36
3D2	Fiji	OC	56	32
3D2	Conway Reef	OC	56	32
3D2	Rotuma I.	OC	56	32
3DA	Swaziland	AF	57	38
3V	Tunisia	AF	37	33
3W, XV	Vietnam	AS	49	26
3X	Guinea	AF	46	35
3Y	Bouvet	AF	67	38
3Y	Peter I I.	AN	72	12
4J, 4K	Azerbaijan	AS	29	21
4L	Georgia	AS	29	21
4P-4S	Sri Lanka	AS	41	22
4U-ITU	ITU HQ	EU	28	14
4U-UN	United Nations HQ	NA	08	05
4W[44]	UNTAET (E. Timor)	OC	54	28
4X, 4Z	Israel	AS	39	20
5A	Libya	AF	38	34
5B	Cyprus	AS	39	20
5H-5I	Tanzania	AF	53	37
5N-5O	Nigeria	AF	46	35
5R-5S	Madagascar	AF	53	39
5T[2]	Mauritania	AF	46	35
5U[3]	Niger	AF	46	35
5V	Togo	AF	46	35
5W	Samoa	OC	62	32
5X	Uganda	AF	48	37
5Y-5Z	Kenya	AF	48	37
6V-6W[4]	Senegal	AF	46	35
6Y	Jamaica	NA	11	08
7O[5]	Yemen	AS	39	21
7P	Lesotho	AF	57	38
7Q	Malawi	AF	53	37
7T-7Y	Algeria	AF	37	33
8P	Barbados	NA	11	08
8Q	Maldives	AS/AF	41	22
8R	Guyana	SA	12	09
9A[6]	Croatia	EU	28	15
9G[7]	Ghana	AF	46	35
9H	Malta	EU	28	15
9I-9J	Zambia	AF	53	36
9K	Kuwait	AS	39	21
9L	Sierra Leone	AF	46	35
9M2, 4[8]	West Malaysia	AS	54	28
9M6, 8[8]	East Malaysia	OC	54	28
9N	Nepal	AS	42	22
9Q-9T	Dem. Rep. of Congo	AF	52	36
9U[9]	Burundi	AF	52	36
9V[10]	Singapore	AS	54	28
9X[9]	Rwanda	AF	52	36
9Y-9Z	Trinidad & Tobago	SA	11	09
A2	Botswana	AF	57	38
A3	Tonga	OC	62	32
A4	Oman	AS	39	21
A5	Bhutan	AS	41	22
A6	United Arab Emirates	AS	39	21
A7	Qatar	AS	39	21
A9	Bahrain	AS	39	21
AP-AS	Pakistan	AS	41	21
BS7[11]	Scarborough Reef	AS	50	27
BV	Taiwan	AS	44	24
BV9P[12]	Pratas I.	AS	44	24

Prefix	Entity	Continent	ZONE ITU	ZONE CQ
BY,BT	China	AS	(A)	23,24
C2	Nauru	OC	65	31
C3	Andorra	EU	27	14
C5	The Gambia	AF	46	35
C6	Bahamas	NA	11	08
C8-9	Mozambique	AF	53	37
CA-CE	Chile	SA	14, 16	12
CE0	Easter I.	SA	63	12
CE0	Juan Fernandez Is.	SA	14	12
CE0	San Felix & San Ambrosio	SA	14	12
CE9/KC4*	Antarctica	AN	(B)	(C)
CM, CO	Cuba	NA	11	08
CN	Morocco	AF	37	33
CP	Bolivia	SA	12, 14	10
CT	Portugal	EU	37	14
CT3	Madeira Is.	AF	36	33
CU	Azores	EU	36	14
CV-CX	Uruguay	SA	14	13
CY0	Sable I.	NA	09	05
CY9	St. Paul I.	NA	09	05
D2-3	Angola	AF	52	36
D4	Cape Verde	AF	46	35
D6[13]	Comoros	AF	53	39
DA-DL[14]	Fed. Rep. of Germany	EU	28	14
DU-DZ	Philippines	OC	50	27
E3[15]	Eritrea	AF	48	37
E4[43]	Palestine	AS	39	20
EA-EH	Spain	EU	37	14
EA6-EH6	Balearic Is.	EU	37	14
EA8-EH8	Canary Is.	AF	36	33
EA9-EH9	Ceuta & Melilla	AF	37	33
EI-EJ	Ireland	EU	27	14
EK	Armenia	AS	29	21
EL	Liberia	AF	46	35
EP-EQ	Iran	AS	40	21
ER	Moldovia	EU	29	16
ES	Estonia	EU	29	15
ET	Ethiopia	AF	48	37
EU, EV, EW	Belarus	EU	29	16
EX	Kyrgyzstan	AS	30, 31	17
EY	Tajikistan	AS	30	17
EZ	Turkmenistan	AS	30	17
F	France	EU	27	14
FG	Guadeloupe	NA	11	08
FJ, FS[1]	Saint Martin	NA	11	08
FH[13]	Mayotte	AF	53	39
FK	New Caledonia	OC	56	32
FK/C[45]	Chesterfield Is.	OC	56	30
FM	Martinique	NA	11	08
FO[16]	Austral I.	OC	63	32
FO	Clipperton I.	NA	10	07
FO	French Polynesia	OC	63	32
FO[16]	Marquesas Is.	OC	63	31
FP	St. Pierre & Miquelon	NA	09	05
FR/G[17]	Glorioso Is.	AF	53	39
FR/J, E[17]	Juan de Nova, Europa	AF	53	39
FR	Reunion I.	AF	53	39
FR/T	Tromelin I.	AF	53	39
FT5W	Crozet I.	AF	68	39
FT5X	Kerguelen Is.	AF	68	39
FT5Z	Amsterdam & St. Paul Is.	AF	68	39
FW	Wallis & Futuna Is.	OC	62	32
FY	French Guiana	SA	12	09
G, GX	England	EU	27	14
GD, GT	Isle of Man	EU	27	14
GI, GN	Northern Ireland	EU	27	14
GJ, GH	Jersey	EU	27	14
GM, GS	Scotland	EU	27	14
GU, GP	Guernsey	EU	27	14

Prefix	Entity	Conti-nent	ZONE ITU	CQ
GW, GC	Wales	EU	27	14
H4	Solomon Is.	OC	51	28
H40[18]	Temotu Province	OC	51	32
HA, HG	Hungary	EU	28	15
HB	Switzerland	EU	28	14
HB0	Liechtenstein	EU	28	14
HC-HD	Ecuador	SA	12	10
HC8-HD8	Galapagos Is.	SA	12	10
HH	Haiti	NA	11	08
HI	Dominican Republic	NA	11	08
HJ-HK	Colombia	SA	12	09
HK0	Malpelo I.	SA	12	09
HK0	San Andres & Providencia	NA	11	07
HL	Republic of Korea	AS	44	25
HO-HP	Panama	NA	11	07
HQ-HR	Honduras	NA	11	07
HS, E2	Thailand	AS	49	26
HV	Vatican	EU	28	15
HZ	Saudi Arabia	AS	39	21
I	Italy	EU	28	15, 33
IS0, IM0	Sardinia	EU	28	15
J2	Djibouti	AF	48	37
J3	Grenada	NA	11	08
J5	Guinea-Bissau	AF	46	35
J6	St. Lucia	NA	11	08
J7	Dominica	NA	11	08
J8	St. Vincent	NA	11	08
JA-JS	Japan	AS	45	25
JD1[19]	Minami Torishima	OC	90	27
JD1[20]	Ogasawara	AS	45	27
JT-JV	Mongolia	AS	32,	23
33				
JW	Svalbard	EU	18	40
JX	Jan Mayen	EU	18	40
JY	Jordan	AS	39	20
K,W,N, AA-AK	United States of America	NA	6, 7,8	3,4, 5
KG4	Guantanamo Bay	NA	11	08
KH0	Mariana Is.	OC	64	27
KH1	Baker & Howland Is.	OC	61	31
KH2	Guam	OC	64	27
KH3	Johnston I.	OC	61	31
KH4	Midway I.	OC	61	31
KH5	Palmyra & Jarvis Is.	OC	61, 62	31
KH5K	Kingman Reef	OC	61	31
KH6,7	Hawaii	OC	61	31
KH7K	Kure I.	OC	61	31
KH8	American Samoa	OC	62	32
KH9	Wake I.	OC	65	31
KL7	Alaska	NA	1,2	1
KP1	Navassa I.	NA	11	08
KP2	Virgin Is.	NA	11	08
KP3,4	Puerto Rico	NA	11	08
KP5[22]	Desecheo I.	NA	11	08
LA-LN	Norway	EU	18	14
LO-LW	Argentina	SA	14, 16	13
LX	Luxembourg	EU	27	14
LY	Lithuania	EU	29	15
LZ	Bulgaria	EU	28	20
OA-OC	Peru	SA	12	10
OD	Lebanon	AS	39	20
OE	Austria	EU	28	15
OF-OI	Finland	EU	18	15
OH0	Aland Is.	EU	18	15
OJ0, OH0M	Market Reef	EU	18	15
OK-OL[23]	Czech Republic	EU	28	15
OM[23]	Slovak Republic	EU	28	15
ON-OT	Belgium	EU	27	14
OX	Greenland	NA	5,75	40
OY	Faroe Is.	EU	18	14
OZ	Denmark	EU	18	14
P2[24]	Papua New Guinea	OC	51	28
P4[25]	Aruba	SA	11	09
P5[26]	DPR of Korea	AS	44	25
PA-PI	Netherlands	EU	27	14

Prefix	Entity	Conti-nent	ZONE ITU	CQ
PJ2, 4, 9	Bonaire, Curacao (Neth. Antilles)	SA	11	09
PJ5-8	St. Maarten, Saba, St. Eustatius	NA	11	08
PP-PY	Brazil	SA	(D)	11
PP0-PY0F	Fernando de Noronha	SA	13	11
PP0-PY0S	St. Peter & St. Paul Rocks	SA	13	11
PP0-PY0T	Trindade & Martim Vaz Is.	SA	15	11
PZ	Suriname	SA	12	09
R1FJ	Franz Josef Land	EU	75	40
R1MV	Malyj Vysotskij I.	EU	29	16
S0[11,27]	Western Sahara	AF	46	33
S2	Bangladesh	AS	41	22
S5[6]	Slovenia	EU	28	15
S7	Seychelles	AF	53	39
S9	Sao Tome & Principe	AF	47	36
SA-SM	Sweden	EU	18	14
SN-SR	Poland	EU	28	15
ST	Sudan	AF	48	34
SU	Egypt	AF	38	34
SV-SZ	Greece	EU	28	20
SV/A	Mount Athos	EU	28	20
SV5	Dodecanese	EU	28	20
SV9	Crete	EU	28	20
T2[28]	Tuvalu	OC	65	31
T30	W. Kiribati (Gilbert Is.)	OC	65	31
T31	C. Kiribati (British Phoenix Is.)	OC	62	31
T32	E. Kiribati (Line Is.)	OC	61, 63	31
T33	Banaba I. (Ocean I.)	OC	65	31
T5	Somalia	AF	48	37
T7	San Marino	EU	28	15
T8, KC6[21]	Palau	OC	64	27
T9[29]	Bosnia-Herzegovina	EU	28	15
TA-TC	Turkey	EU/AS	39	20
TF	Iceland	EU	17	40
TG, TD	Guatemala	NA	11	07
TI, TE	Costa Rica	NA	11	07
TI9	Cocos I.	NA	11	07
TJ	Cameroon	AF	47	36
TK	Corsica	EU	28	15
TL[30]	Central Africa	AF	47	36
TN[31]	Congo (Republic of the)	AF	52	36
TR[32]	Gabon	AF	52	36
TT[33]	Chad	AF	47	36
TU[34]	Cote d'Ivoire	AF	46	35
TY[35]	Benin	AF	46	35
TZ[36]	Mali	AF	46	35
UA-UI1,3,4,6, RA-RZ	European Russia	EU	(E)	16
UA2	Kaliningrad	EU	29	15
UA-UI8,9,0	Asiatic Russia	AS	(F)	(G)
RA-RZ				
UJ-UM	Uzbekistan	AS	30	17
UN-UQ	Kazakhstan	AS	29-31	17
UR-UZ, EM-EO	Ukraine	EU	29	16
V2	Antigua & Barbuda	NA	11	08
V3	Belize	NA	11	07
V4[37]	St. Kitts & Nevis	NA	11	08
V5	Namibia	AF	57	38
V6[38]	Micronesia	OC	65	27
V7	Marshall Is.	OC	65	31
V8	Brunei	OC	54	28
VE, VO, VY	Canada	NA	(H)	1-5
VK	Australia	OC	(I)	29,30
VK0	Heard I.	AF	68	39
VK0	Macquarie I.	OC	60	30
VK9C	Cocos-Keeling Is.	OC	54	29
VK9L	Lord Howe I.	OC	60	30
VK9M	Mellish Reef	OC	56	30
VK9N	Norfolk I.	OC	60	32
VK9W	Willis I.	OC	55	30
VK9X	Christmas I.	OC	54	29
VP2E[37]	Anguilla	NA	11	08
VP2M[37]	Montserrat	NA	11	08
VP2V[37]	British Virgin Is.	NA	11	08
VP5	Turks & Caicos Is.	NA	11	08
VP6	Pitcairn I.	OC	63	32

Prefix	Entity	Conti-nent	ZONE ITU	ZONE CQ
VP6[46]	Ducie I.	OC	63	32
VP8	Falkland Is.	SA	16	13
VP8, LU	South Georgia I.	SA	73	13
VP8, LU	South Orkney Is.	SA	73	13
VP8, LU	South Sandwich Is.	SA	73	13
VP8, LU, CE9, HF0, 4K1	South Shetland Is.	SA	73	13
VP9	Bermuda	NA	11	05
VQ9	Chagos Is.	AF	41	39
VR	Hong Kong	AS	44	24
VU	India	AS	41	22
VU	Andaman & Nicobar Is.	AS	49	26
VU	Lakshadweep Is.	AS	41	22
XA-XI	Mexico	NA	10	06
XA4-XI4	Revillagigedo	NA	10	06
XT[39]	Burkina Faso	AF	46	35
XU	Cambodia	AS	49	26
XW	Laos	AS	49	26
XX9	Macao	AS	44	24
XY-XZ	Myanmar	AS	49	26
YA	Afghanistan	AS	40	21
YB-YH[40]	Indonesia	OC	51, 54	28
YI	Iraq	AS	39	21
YJ	Vanuatu	OC	56	32
YK	Syria	AS	39	20
YL	Latvia	EU	29	15
YN	Nicaragua	NA	11	07
YO-YR	Romania	EU	28	20
YS	El Salvador	NA	11	07
YT-YU, YZ	Yugoslavia	EU	28	15
YV-YY	Venezuela	SA	12	09
YV0	Aves I.	NA	11	08
Z2	Zimbabwe	AF	53	38
Z3[41]	Macedonia	EU	28	15
ZA	Albania	EU	28	15
ZB2	Gibraltar	EU	37	14
ZC4[42]	UK Sov. Base Areas on Cyprus	AS	39	20
ZD7	St. Helena	AF	66	36
ZD8	Ascension I.	AF	66	36
ZD9	Tristan da Cunha & Gough I.	AF	66	38
ZF	Cayman Is.	NA	11	08
ZK1	N. Cook Is.	OC	62	32
ZK1	S. Cook Is.	OC	62	32
ZK2	Niue	OC	62	32
ZK3	Tokelau Is.	OC	62	31
ZL-ZM	New Zealand	OC	60	32
ZL7	Chatham Is.	OC	60	32
ZL8	Kermadec Is.	OC	60	32
ZL9	Auckland & Campbell Is.	OC	60	32
ZP	Paraguay	SA	14	11
ZR-ZU	South Africa	AF	57	38
ZS8	Prince Edward & Marion Is.	AF	57	38

Notes

(1) Unofficial prefix.
(2) (5T) Only contacts made June 20, 1960, and after, count for this entity.
(3) (5U) Only contacts made August 3, 1960, and after, count for this entity.
(4) (6W) Only contact made June 20, 1960, and after, count for this entity.
(5) (70) Only contacts made May 22, 1990, and after, count for this entity.
(6) (9A,S5) Only contacts made June 26, 1991, and after, count for this entity.
(7) (9G) Only contacts made March 5, 1957, and after, count for this entity.
(8) (9M2,4,6,8) Only contacts made September 16, 1963, and after, count for this entity.
(9) (9U, 9X) Only contacts made July 1, 1962, and after, count for this entity.
(10) (9V) Contacts made from September 16, 1963 to August 8, 1965, count for West Malaysia.
(11) (BS7) Only contacts made January 1, 1995, and after, count for this entity.
(12) (BV9P) Only contact made January 1, 1994, and after, count for this entity.
(13) (D6,FH) Only contacts made July 6, 1975, and after, count for this entity.
(14) (DA-DL) Only contacts made with DA-DL stations September 17, 1973, and after, and contacts made Y2-Y9 stations October 3, 1990 and after, count for this entity.
(15) (E3) Only contacts made November 14, 1962, and before, or May 24, 1991, and after, count for this entity.
(16) (FO) Only contacts made after 23:59 UTC, March 31, 1998 count for this entity.
(17) (FR) Only contacts made June 25, 1960, and after, count for this entity.
(18) (H40) Only contacts made after 23:59 UTC, March 31, 1998 count for this entity.
(19) (JD) Formerly Marcus Island.
(20) (JD) Formerly Bonin and Volcano Islands.
(21) (KC6) Includes Yap Islands December 31, 1980, and before.
(22) (KP5) Only contacts made March 1, 1979, and after, count for this entity.
(23) (OK-OL, OM) Only contacts made January 1, 1993, and after, count for this entity.
(24) (P2) Only contacts made September 16, 1975, and after count for this entity.
(25) (P4) Only contacts made January 1, 1986, and after, count for this entity.
(26) (P5) Only contacts made May 14, 1995, and after, count for this entity.
(27) (S0) Contacts with Rio de Oro (Spanish Sahara), EA9, also count for this entity.
(28) (T2) Only contacts made January 1, 1976, and after, count for this entity.
(29) (T9) Only contacts made October 15, 1991, and after, count for this entity.
(30) (TL) Only contacts made August 13, 1960, and after, count for this entity.
(31) (TN) Only contacts made August 15, 1960, and after, count for this entity.
(32) (TR) Only contacts made August 17, 1960, and after, count for this entity.
(33) (TT) Only contacts made August 11, 1960, and after, count for this entity.
(34) (TU) Only contacts made August 7, 1960, and after, count for this entity.
(35) (TY) Only contacts made August 1, 1960, and after, count for this entity.
(36) (TZ) Only contacts made June 20, 1960, and after, count for this entity.
(37) (V4,VP2) For DXCC credit for contacts made May 31, 1958, and before, see page 97, June 1958 *QST*.
(38) (V6) Includes Yap Islands January 1, 1981, and after.
(39) (XT) Only contacts made August 16, 1960, and after, count for this entity.
(40) (YB) Only contacts made May 1, 1963, and after, count for this entity.
(41) (Z3) Only contacts made September 8, 1991, and after, count for this entity.
(42) (ZC4) Only contacts made August 16, 1960, and after, count for this entity.
(43) (E4) Only contacts made February 1, 1999, and after, count for this entity.
(44) (4W) Only contacts made March 1, 2000, and after, count for this entity.
(45) (FK/C) Only contacts made March 23, 2000, and after, count for this entity.
(46) (VP6) Only contacts made November 16, 2001, and after, count for this entity.

*Also 3Y, 8J1, AT0, DP0, FT8Y, LU, OR4, VK0, R1AW, VP8, ZL5, ZS1, ZX0, etc. QSL via country under whose auspices the particular station is operating. The availability of a third-party traffic agreement and a QSL Bureau applies to the country under whose auspices the particular station is operating.

Zone Notes can be found with Prefix Cross References.

DELETED ENTITIES

Credit for any of these entities can be given if the date of contact in question agrees with the date(s) shown in the corresponding footnote. Entities deleted after 23:59 UTC 31 March 1998 will not be included in the Deleted List.

Prefix	Entity	Continent	ZONE ITU	ZONE CQ
(2)	Blenheim Reef	AF	41	39
(3)	Geyser Reef	AF	53	39
(4)	Abu Ail Is.	AS	39	21
1M(1),(5)	Minerva Reef	OC	62	32
4W(6)	Yemen Arab Rep.	AS	39	21
7J1(7)	Okino Tori-shima	AS	45	27
8Z4(8)	Saudi Arabia/Iraq Neut. Zone	AS	39	21
8Z5, 9K3(9)	Kuwait/Saudi Arabia Neut. Zone	AS	39	21
9S4(10)	Saar	EU	28	14
9U5(11)	Ruanda-Urundi	AF	52	36
AC3(1),(12)	Sikkim	AS	41	22
AC4(1),(13)	Tibet	AS	41	23
C9(14)	Manchuria	AS	33	24
CN2(15)	Tangier	AF	37	33
CR8(16)	Damao, Diu	AS	41	22
CR8(16)	Goa	AS	41	22
CR8, CR10(17)	Portuguese Timor	OC	54	28
DA-DM(18)	Germany	EU	28	14
DM, Y2-9(19)	German Dem. Rep.	EU	28	14
EA9(20)	Ifni	AF	37	33
FF(21)	French West Africa	AF	46	35
FH, FB8(22)	Comoros	AF	53	39
FI8(23)	French Indo-China	AS	49	26
FN8(24)	French India	AS	41	22
FQ8(25)	Fr. Equatorial Africa	AF	47, 52	36
HK0(26)	Bajo Nuevo	NA	11	08
HK0,KP3,KS4(26)	Serrana Bank & Roncador Cay	NA	11	07
I1(27)	Trieste	EU	28	15
I5(28)	Italian Somaliland	AF	48	37
JZ0(29)	Netherlands N. Guinea	OC	51	28
KR6,8,JR6, KA6(30)	Okinawa (Ryukyu Is.)	AS	45	25
KS4(31)	Swan Is.	NA	11	07
KZ5(32)	Canal Zone	NA	11	07
OK-OM(33)	Czechoslovakia	EU	28	15
P2, VK9(34)	Papua Territory	OC	51	28
P2, VK9(34)	Terr. New Guinea	OC	51	28
PK1-3(35)	Java	OC	54	28
PK4(35)	Sumatra	OC	54	28
PK5(35)	Netherlands Borneo	OC	54	28
PK6(35)	Celebe & Molucca Is.	OC	54	28
ST0(36)	Southern Sudan	AF	47, 48	34
UN1(37)	Karelo-Finnish Rep.	EU	19	16
VO(38)	Newfoundland, Labrador	NA	09	02,05
VQ1, 5H1(39)	Zanzibar	AF	53	37
VQ6(40)	British Somaliland	AF	48	37
VQ9(40)	Aldabra	AF	53	39
VQ9(40)	Desroches	AF	53	39
VQ9(40)	Farquhar	AF	53	39
VS2, 9M2(42)	Malaya	AS	54	28
VS4(42)	Sarawak	OC	54	28
VS9A, P, S(43)	People's Dem. Rep. of Yemen	AS	39	21
VS9H(44)	Kuria Muria I.	AS	39	21
VS9K(45)	Kamaran Is.	AS	39	21
ZC5(42)	British North Borneo	OC	54	28
ZC6, 4X1(46)	Palestine	AS	39	20
ZD4(47)	Gold Coast, Togoland	AF	46	35
ZS0, 1(48)	Penguin Is.	AF	57	38
ZS9(49)	Walvis Bay	AF	57	38

Notes

(1) Unofficial prefix.

(2) (Blenheim Reef) Only contacts made from May 4, 1967, to June 30, 1975, count for this entity. Contacts made July 1, 1975, and after, count as Chagos (VQ9).

(3) (Geysey Reef) Only contacts made from May 4, 1967, to February 28, 1978, count for this entity.

(4) (Abu Ail Is.) Only contacts made March 30, 1991, and before, count for this entity.

(5) (1M) Only contacts made from July 15, 1972, and before, count for this entity. Contacts made July 16, 1972, and after, count as Tonga (A3).

(6) (4W) Only contacts made before May 21, 1990, and before, count for this entity.

(7) (7J1) Only contacts made May 30, 1976, to November 30, 1980, count for this entity. Contacts made December 1, 1980, and after entity as Ogasawara (JD1).

(8) (8Z4) Only contacts made December 25, 1981, and before, count for this entity.

(9) (8Z5,9K3) Only contacts made December 14, 1969, and before, count for this entity.

(10) (9S4) Only contacts made March 31, 1957, and before, count for this entity.

(11) (9U5) Only contacts made from July 1, 1960, to June 30, 1962, count for this entity. Contact made July 1, 1962, and after, count as Burundi (9U) or Rwanda (9X).

(12) (AC3) Only contacts made April 30, 1975, and before, count for this entity. Contacts made May 1, 1975, and after, count as India (VU).

(13) (AC4) Only contacts made May 30, 1974, and before, count for this entity. Contact made May 31, 1974, and after, count as China (BY).

(14) (C9) Only contacts made September 15, 1963, and before, count for this entity. Contact made September 16, 1963, and after, count as China (BY).

(15) (CN2) Only contacts made June 30, 1960, and before, count for this entity. Contact made July 1, 1960, and after, count as Morocco (CN).

(16) (CR8) Only contacts made December 31, 1961, and before, count for this entity.

(17) (CR8,CR10) Only contacts made September 14, 1976, and before, count for this entity.

(18) (DA-DM) Only contacts made September 16, 1973, and before, count for this entity. Contacts made September 17, 1973, and after, count as either FRG (DA-DL) or GDR (Y2-Y9).

(19) (DM,Y2-9) Only contacts made from September 17, 1973, to October 2, 1990 count for this entity. On October 3, 1990 the GDR became part of the FRG.

(20) (EA9) Only contacts made May 13, 1969, and before, count for this entity.

(21) (FF) Only contacts made August 6, 1960, and before, count for this entity.

(22) (FH, FB8) Only contacts made July 5, 1975, and before, count for this entity. Contacts made July 6, 1975, and after, count as Comoros (D6) or Mayotte (FH).

(23) (FI8) Only contacts made December 20, 1950, and before, count for this entity.

(24) (FN8) Only contacts made October 31, 1954, and before, count for this entity.

(25) (FQ8) Only contacts made August 16, 1960, and before will count for this entity.

(26) (HK,KP3,KS4) Only contacts made September 16, 1981, and before, count for this entity. Contacts made September 17, (1981), and after, count as San Andres (HK).

(27) (I1) Only contacts made March 31, 1957, and before, count for this entity.

(28) (I5) Only contacts made June 30, 1960, and before, count for this entity.

(29) (JZ) Only contacts made April 30, 1963, and before, count for this entity.

(30) (KR6,8,JR6,KA6) Only contacts made May 14, 1972, and before, count for this entity. Contacts made May 15, 1972, and after, count as Japan (JA).

(31) (KS4) Only contacts made August 31, 1972, and before, count for this entity. Contacts made September 1, 1972, and after, count as Honduras (HR).
(32) (KZ5) Only contacts made September 30, 1979, and before, count for this entity.
(33) (OK-OM) Only contacts made December 31, 1992, and before, count for this entity.
(34) (P2,VK9) Only contacts made September 15, 1975, and before, count for this entity. Contacts made September 16, 1975, and after, count as Papua New Guinea (P2).
(35) (PK1-6) Only contacts made April 30, 1963, and before, count for this entity. Contact made May 1, 1963, and after, count as Indonesia.
(36) Only contacts made between May 7, 1972 and December 31, 1994, count for this entity.
(37) (UN1) Only contacts made June 30, 1960, and before, count for this entity. Contacts made July 1, 1960, and after count as European RSFSR (UA).
(38) (VO) Only contacts made March 31, 1949, and before, count for this entity. Contacts made April 1, 1949, and after, count as Canada (VE).
(39) (VQ1,5H1) Only contacts made May 31, 1974, and before, count for this entity. Contacts made June 1, 1974, and after, count as Tanzania (5H).
(40) (VQ6) Only contacts made June 30, 1960, and before, count for this entity.
(41) (VQ9) Only contacts made June 28, 1976, and before, count for this entity. Contacts made June 29, 1976, and after, count as Seychelles (S7).
(42) (VS2,VS4,ZC5,9M2) Only contacts made September 15, 1963, and before, count for this entity. Contacts made September 16, 1963, and after, count as West Malaysia (9M2) or East Malaysia (9M6,8).
(43) (VS9A,P,S) Only contacts made before May 22, 1990, and before, count for this entity.
(44) (VS9H) Only contacts made November 29, 1967, and before, count for this entity.
(45) (VS9K) Only contacts made on March 10, 1982, and before, count for this entity.
(46) (ZC6,4X1) Only contacts made June 30, 1968, and before, count for this entity. Contacts made July 1, 1968, and after, count as Israel (4X).
(47) (ZD4) Only contacts made March 5, 1957, and before, count for this entity.
(48) (ZS0, 1) Only contacts made February 29, 1994, and before, count for this entity.
(49) (ZS9) Only contacts made from September 1, 1977 to February 28, 1994, count for this entity.

PREFIX CROSS REFERENCES

A8 = EL
AC (before 1972) = A5
AH = KH
AL7 = KL7
AM-AO = EA
AT-AW = VU
AX = VK
AY-AZ = LU
CF-CK = VE
CL = CO
CQ-CS = CT
CR3 (before 1974) = J5
CR4 (before 1976) = D4
CR5 (before 1976) = S9
CR6 (before 1976) = D2
CR7 (before 1976) = C9
CR9 (before 1985) = XX9
CT2 (before 1986) = CU
CX0 = CE9/VP8
CY-CZ = VE
CY0 (before 1985) = CY9
D7 = HL
DM-DT (before 1980) = Y2-9
DS-DT = HL
E2 = HS
EA0 (before 1969) = 3C
EK, EM-EO, ER-ES, EU-EZ = U
ER (after 1992) = UO
EU (after 1991) = UC
FA-FF (after 1983) = F
FA(before 1963) = 7X
FB8 (before 1961) = 5R
FB8 (before 1985) = FT
FC(before 1985) = TK
FD8 (before 1961) = 5V
FE8 (before 1961) = TJ
FL(before 1978) = J2
FU8 (before 1982) = YJ
GB = G
GC(before 1977) = GJ or GU
H2 = 5B
H3 = HP
H5 (Bophutatswana) = ZS
H7 = YN
HE = HB
HM (before 1982) = HL
HT = YN
HU = YS
HW-HY = F
J4 = SV
KA1 = JD1
KA2AA-KA9ZZ = JA
KC6 (before 1990) = V6
KB6 (before 1979) = KH1
KC4 (Navassa) = KP1
KG6 (before 1979) = KH2
KG6I (before 1970) = JD1
KG6R, S, T (before 1979) = KH0
KH7 (before 1996) = KH7K
KJ6 (before 1979) = KH3
KM6 (before 1979) = KH4
KP4 (Desecheo) = KP5
KP6 (before 1979) = KH5
KS6 (before 1979) = KH8
KV4 (before 1979) = KP2
KW6 (before 1979) = KH9
KX6 (before 1990) = V7
L2-9 = LU
M = G
M1 (before 1984) = T7
MP4B (before 1972) = A9
MP4M (before 1972) = A4
MP4Q (before 1972) = A7
MP4T, D (before 1972) = A6
NH = KH
NL7 = KL7
NP = KP
OQ (before 1961) = 9Q
P3 = 5B
P4 (before 1986) = PJ
PX (before 1970) = C3
RA, RN = UA
RB-RR = UB-UR
RS = U
RT = UB
RU-RX = U
S4 (Ciskei) = ZS
S8 (Transkei) = ZS
T4 = CO
T4 (Venda) = ZS
TH, TM, TO-TQ, TV-TX = F
UB (before 1994) = UZ
UC (before 1991) = EU
UD (before 1994) = 4J
UF (before 1994) = 4L
UG (before 1994) = EK
UH (before 1993) = EZ
UI (before 1994) = UJ
UJ (before 1993) = EY
UL (before 1994) = UN
UM (before 1993) = EX
UO (before 1994) = ER
UP (before 1991) = LY
UQ (before 1992) = YL
UR (before 1991) = ES
V9 (Venda) = ZS
VA-VG = VE
VH-VN = VK
VK9 (Nauru) = C2
VP1 (before 1982) = V3
VP2A (before 1982) = V2
VP2D (before 1979) = J7
VP2G (before 1975) = J3
VP2K (before 1984) = V4 or VP2E
VP2L (before 1980) = J6
VP2S (before 1980) = J8
VP3 (before 1967) = 8R
VP4 (before 1963) = 9Y
VP5 (Jamaica) = 6Y
VP5E = VP2E
VP6 (before 1967) = 8P
VP7 (before 1974) = C6
VQ2 (before 1965) = 9J
VQ3 (before 1962) = 5H
VQ4 (before 1964) = 5Z
VQ5 (before 1963) = 5X
VQ8 (before 1969) = 3B
VQ8 (Chagos) = VQ9
VQ9 (Seychelles) = S7
VR1 (before 1980) = T3
VR2 (before 1971) = 3D2
VR2 (after 1991) = VS6
VR3 (before 1980) = T32
VR4 (before 1979) = H4
VR5 (before 1971) = A3
VR6 (before 1998) = VP6
VR8 (before 1979) = T2
VS1 (before 1966) = 9V
VS5 (before 1985) = V8
VS6 (before 1997) = VR
VS7 (before 1949) = 4S
VS9M = 8Q
VS9O (before 1961) = A4
VX-VY = CY0/VE
WH = KH
WL7 = KL7
WP = KP
XJ-XO = VE
XP = OX
XQ-XR = CE
XV = 3W
XX7 (before 1976) = C9
YU2 (before 1992) = 9A
YU3 (before1992) = S5
YU4 (before 1992) = T9
YU5 (before 1992) = Z3
ZB1 (before 1965) = 9H
ZD1 (before 1962) = 9L
ZD2 (before 1961) = 5N
ZD3 (before 1966 = C5
ZD5 (before 1969) = 3DA
ZD6 (before 1965) = 7Q
ZE (before 1981) = Z2-9
ZK9 (1983) = ZK2
ZM6 (before 1963) = 5W
ZM7 (before 1984) = ZK3
ZS3 (before 1991) = V5
ZS7 (before 1969) = 3D6
ZS8 (before 1967) = 7P
ZS9 (before 1967) = A2
ZV-ZZ = PY
2D = GD
2E = G
2I = GI
2J = GJ
2M = GM
2U = GU
2W = GW
3B-3C (before 1968) = VE
3D6 (before 1988) = 3DA
3G = CE
3Z = SP
4A-4C = XE
4D-4I = DU
4J-4L = U
4J (after 1991) = EK
4J1F (before 1994) = R1MV
4K (before 1994) = UA
4K1 (before 1994) = CE9/KC4
4K2 (before 1994) = R1FJ
4K3 (before 1994) = UA
4K4 (before 1994) = UA0
4L (after 1991) = UF
4M = YV
4N-4O = YU
4T = OA
4U1VIC = OE
4V = HH
5J-5K = HK
5L-5M = EL
6C = YK
6D-6J = XE
6K-6N = HL
6O = T5
6T-6U = ST
7A-7I = YB
7G (before 1967) = 3X
7J-7N = JA
7JI = JA1 or JD1
7S = SM
7Z = HZ
8A-8I = YB
8J-8N = JA
8O = A2
8S = SM
9A (before 1984) = T7
9B-9D = EP
9E-9F = ET

Continents

AF = Africa
AN = Antarctica
AS = Asia
EU = Europe
NA = North America
OC = Oceania
SA = South America

Zone Notes

(A) 33, 42, 43, 44
(B) 67, 69-74
(C) 12, 13, 29, 30, 32, 38, 39
(D) 12, 13, 15
(E) 19, 20, 29, 30
(F) 20-26, 30-35, 75
(G) 16, 17, 18, 19, 23
(H) 2, 3, 4, 9, 75
(I) 55, 58, 59

Introduction.

Satellites provide two important paths for the radio amateurs, the opportunity to be involved in space activities, and communication capabilities to cover almost half the globe at a time with line of sight radio systems.

Since the first orbit of an amateur radio unit in December 1961 over 40 radio amateur satellites have been constructed and launched varying from simple beacon systems to sophisticated high orbit multi mode/band repeater complexes.

The Amateur Satellite Service is recognized by the ITU (see IARU pages) with its own frequency allocations, within the amateur bands, for space operation.

Overview

The first amateur satellite was named OSCAR I for Orbital Satellite Carrying Amateur Radio. This consisted of a simple battery powered 2m beacon. The second satellite or OSCAR II also carried only a beacon but included improvements in design. OSCAR III was the first to carry a repeater, or transponder as they are referred to in satellite terminology. OSCAR V built on the previous experience exploring the 10m band for space use and incorporated a command system for remote control of various internal functions.

OSCAR VI, VII and VIII brought reliable two-way satellite communications to amateurs around the world. With the increased awareness of amateurs to satellite activity, specialist groups appeared which over the years have grown to involve many countries having their own amateur satellite groups or AMSATs.

The Amateur Satellite Corporation (registered trademark AMSAT), based in Washington, DC, soon engendered other groups including our own AMSAT-ZL. These organizations share the same aims of supporting space exploration by amateur radio and the encouragement of the use of space facilities by radio amateurs.

At the World Administrative Radio Conference of 1979 the Amateur Satellite Service was introduced and various frequency bands within the Amateur Service allocation were set aside for amateur radio space use.

Amateur satellites continued to develop, exploring all usual modes and bands. With the advent of packet radio several satellites were designed specifically to expand use of the mode for inter-communications and for telemetry. A recent development has been the launch of a satellite specifically intended for use by packet radio in APRS or Automatic Position Reporting System networks.

While some satellites carry FM repeaters, most transponders are linear allowing the use of any mode along with simultaneous access to many stations. Low orbit satellites give access times of perhaps only 20 minutes or less with ranges in the low thousands of miles. The recent successful launch of a number of Phase 3 satellites into higher elliptical orbits have increased ranges and access times to the extent where the latest unit, AO-40, gives access times up to 16 hours and ranges nearing half the globe, in fact, in some passes it is possible to have varying coverage over perhaps 80 per cent of the earth's surface.

Popular modes with current satellites include SSB, CW, Packet Radio, SSTV and PSK. For many operators the task of collection of telemetry and perfection of their systems is sufficient although for most it is the communications and DXing that holds the greatest interest.

Equipment Requirements.

Equipment requirements vary according to the satellite to be used. Most low orbit satellites use VHF/UHF combinations often including output on 10m. For these a steerable antenna system is useful although normally a dipole or turnstile on 10m suffices for that band.

Circular polarization is important in all cases and should be right hand circular polarization for the majority of operation. Yagis and other beams are practical up to UHF with most favouring Helix antenna for the 23cm band and parabolic dish antenna for SHF and higher. A typical wide use station could have an 8×8 crossed Yagi for 2m, similar unit for 70cm and a 15 turn Helix for 23cm, all on the one cross boom. These would be pointed by an azimuth/elevation combination of rotators, either a ready built unit such as the Yaesu 5400, a combination of separate rotators or a home assembled system perhaps using a linear actuator for elevation.

Control of such an installation can be manual or via a computer controlled and directed pointing system taking its data from a satellite prediction program.

When considering a parabolic dish antenna, it should be remembered that higher gain means narrower beam widths, which in turn demand higher pointing accuracy and physical stability. Popular for the 13cm band (in use by several satellites) are 600mm dish reflectors ex-satellite TV systems. Many are currently surplus on the market and make for an efficient antenna. Helix feeds are wide spread however the recent publication of simple Patch antenna designs has meant a change to these easily reproduced feeds. Remember that the circular polarity will change in a reflected system such as a dish and the polarization of the feed should be left hand circular.

Of utmost importance is a low-noise receive system. Losses must be minimized by using low loss coax and at higher frequencies placing the first low noise stage as close to the antenna feed point as practical. A typical 13cm receive system for AO-40 would use a low noise preamplifier (0.6dB N/F –17dB gain) directly attached to the dish feed or antenna and the shortest practical length of low loss coax to a down-converter mounted adjacent to the antenna. This can then be fed via ordinary coax (e.g. RG-58) to the shack receiver. This system is recommended for SHF and higher. At 70cm and below, a preamplifier mounted at the antenna is recommended with low loss coax feeding the signal to the shack mounted receive system.

For the transmitter, a combination of antenna gain and required EIRP must be considered to calculate and design the system. Most satellites have inputs on 2m and 70cm. A minimum of 10W transmit power is normal although many satellites have been accessed using hand held equipment a low gain antenna.

Where and When

All current amateur satellites are in orbits which seem to the observer to alter from day to day. Access times vary so it is important that operators know when and where any particular satellite may appear. Similarly it is essential for correct pointing of any antenna system that the azimuth and elevation of the satellite during a pass is known with some accuracy.

Several sophisticated programs are available to work on home computers. Some are free but most carry a small cost which is generally given to organizations for use in support of satellite development and operation. At least one Internet site runs such a program online.

These programs generate satellite predictions and can be used both in real time and to predict future passes. Two popular programs are WiSP and InstantTrack, both are available from AMSAT-ZL by writing to them at 20 First View Avenue, Beachlands 1705 or check their web site http://www.amsat-zl.org.nz.

Typically low orbit satellites will afford access via 2m and 70cm throughout New Zealand and the eastern parts of Australia for periods of 10 to 20 minutes five or six times a day. Phase-3 satellites such as AO-40 give access to all of North and South America for several hours and to the west cover all of Asia, most of the Russian continent plus much of Eastern Europe with confirmed contacts to just west of Berlin.

Operational Amateur Spacecraft

The following satellites are operational as at May 15, 2002. For operating frequencies and other information see the listing at the end. These are listed in order of launch using the NASA Catalogue number.

OSCAR-10 (AO-10) Catalogue 14129

Semi-operational. Limited Mode B operation possible. No attitude control possible so will operate if solar panels are in sunlight. The antennas may not be pointed towards the Earth due to random tumbling. Can still provide excellent signals.

OSCAR-11 or UoSAT-2 (UO-11) Catalogue 14781

Amateur Band research and technology satellite. Currently transmitting on 145.826MHz with an AFSK 1200 bps bulletin with a mix of ASCII and binary data. Also has a low power 2401.5MHz (±50kHz Doppler shift) beacon transmitting a carrier only.

UO-14 UoSAT-3 Catalogue 20437

After several years of amateur and commercial use as a Mode-J digital satellite, the on board computer has been reprogrammed to operate as a single channel Mode J FM repeater.

PACSAT AO-16 Catalogue 20439

Mode-J AX25 1200 bps. Only the Digipeater is operational

since an OBC failure. Downlink SSB with PSK modulation—uplink Manchester encoded NBFM. A mode S beacon on 2401.143 MHz can be turned on for 24 hour periods when the satellite has sufficient battery voltage.

FUJI-OSCAR-20 FO-20
Catalogue 20480

Mode-J analogue (Voice) only.

RS-12 & RS-13 (COSMOS 2123)
Catalogue 21089

This satellite is an amateur system riding on and deriving power from COSMOS 2123. RS-12/13 can operate under modes K, A & T. Currently RS-12 is mode K and RS-13 is Mode T.

ITAMSAT OSCAR-26 (IO-26)
Catalogue22826

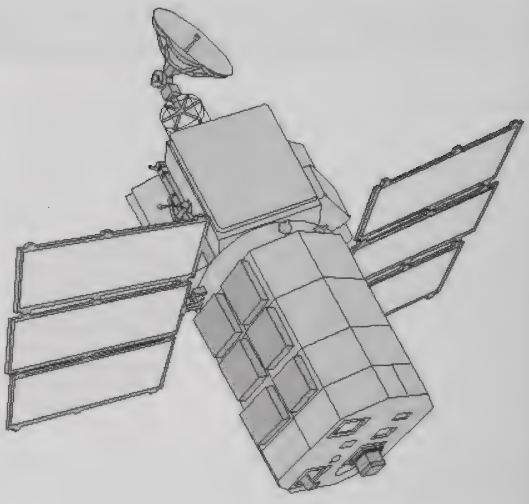
AMSAT Italy's version of PACSAT. Digipeater only operational.

KITSAT-B (KO-25)
Catalogue 22830

This satellite was built and commissioned by a Korean team after working on a previous satellite KO-23 at University of Surrey. KO-25 is controlled from a Korean Command Centre at KAIST. In an orbit similar to UO-22, KO-25 also uses Mode-J 9600 bps FSK BBS, and periodically carries images taken with high definition wide and narrow view cameras.

FUJI-OSCAR-29 (FO-29)
Catalogue 24278

Mode J analogue and digital satellite plus digitised voice synthesiser. The digital mode only operates at 1200 bps PSK alternating with a an analogue voice mode. Sometimes FO-29's digitalker is activated as part of the schedule. Note—a standard packet communications program will operate with FO-29's BBS.



Amateur Satellite Short Form Frequency List

Satellite	Cat. #	Callsign	Beacon	Uplink Frequencies	Downlink Frequencies	Modes	Notes
AO-10	14129		145.809	435.030 - 435.180 LSB	145.975-145.825 USB		Mode-B or UV
UO-11	14781		145.826		145.826, 2401.500 +- 50 kHz		1200 bps AFSK/FM text/data
UO-14	20437			145.975 NBFM	435.070 +- 9 kHz Doppler		Mode J FM Voice only
RS-12	21089		29.408	145.910 - 145.950 USB, CW	29.410 – 29.450 USB, CW	A	Robot 29.454 CW
RS-12	21089		29.408	21.210 – 21.250 USB CW	29.410 – 29.450 USB, CW	K	Robot 29.454 CW
RS-12	21089		145.912	21.210 – 21.250 USB, CW	145.910 – 145.950 USB, CW	T	Robot tx 21.129 rx 145.912 or 145.959 CW
RS-13	21089		29.458	145.960 – 146.000 USB, CW	29.460 – 29.500 USB, CW	A	Robot tx 145.840, rx 29.458 or 29.504 CW
RS-13	21089		29.458	21.260 – 21.300 USB, CW	29.460 – 29.500 USB, CW	K	Robot tx 21.138, rx 29.458 or 29.504 CW
RS-13	21089		145.862	21.260 – 21.300 USB, CW	145.960 – 146.000 USB, CW	T	Robot tx 21.138, rx 145.862 or 145.908 CW
RS-15	23439		29.353	145.858-145.898 USB, CW	29.354-29.394		Robot 29.398 CW
AO-16	20439	PACSAT-11, -12	2401.143	145.900, .920, .940, .960 FM	437.025 or 437.051 PSK SSB		1200 bps AFSK/FM
FO-20	20480		435.795	145.900-999	435.900-800		
UO-22	21575	UOSAT5-11, -12	435.120	145.900 or 145.975	435.120		
KO-25	22828	HL02-11, -12	436.500	145.870 or 145.980	436.500		
IO-26	22826	ITMSAT-11, -12	435.822	145.875, 145.900, .925, .950	435.822		Digipeat APRS
AO-27	22825			145.850 or 145.870	436.795		FM Northern Hemisphere only
FO-29	242278	8J1JCS	435.795	145.900-999	435.900-800		
OO-38	26063		437.100		437.100		9600 FSK
AO-40	26609		2401.323 24048.035	435.80 - 435.55 U or 1269.50 – 1269.25 L1 or 1268.575 – 1268.325 L2	2401.225 – 2401.475 S2 24048 – 24048.278 K		
AO-40	26609	RUDAKA-11			2401.747 or 2401.720		
AO-40	26609	RUDAKB-11			2401.867 or 2401.847		
SO-41	26545	SASAT1-11, -12	436.775	145.850	436.775		FM voice LHC polarisation
SO-42	26549	SASAT2-11, -12	436.075	TBA	436..075		
SO-43	26929	STRSHN	145.820		145.820		9600 FSK
NO-44	26931	PCSAT-1	145.828	145.828	145.828		Side A 1200 AFSK APRS
NO-44	26931	PCSAT-2	145.828	435.250	145.828		Side A 9600 FSK
NO-44	26931	PCSAT-11	144.390	Reserved	144.390		Side B 1200 AFSK APRS
NO-44	26931	PCSAT-12	144.390	Reserved	144.390		Side B 9600 FSK Region 1 & 2
NO-45	26932		437.100	145.945	437.100		1200 FSK
MO-46	26548	MYSAT3-11, -12	437.325	145.850 / 925	437.325		38400 FSK
ISS	25544	NA1SS		145.200	145.800		Voice Region 1
ISS	25544	NA1SS		144.490	145.800		Voice Region 2 & 3

AN INTRODUCTION TO THE WORLD OF DX

prepared by the late
RON WILLS
ZL2TT

Ron Wills passed away in January 2000. Ron's ideas and tips in this "Introduction to the world of DX" are excellent and will help you become as proficient in the art and madness of DXing as Ron was.

To many newcomers to amateur radio DX is what it is "all about". Many of them have risen from the ranks of CB and the opportunity to be able to legally chase DX has been one of the major attractions of amateur radio to them.

So what is "DX" and why is it such a popular aspect of amateur radio?

"DX IS" sums it up for the real DXer. However for the newcomer DX is working long distances. Long distances are really what you want them to be. If you are new to the HF bands you may regard working VK (Australia) as DX. But if you are an experienced DXer you may consider working ZS (South Africa) is more what DX is about, especially if you do it on 80 or 160 m, rather than on one of the higher bands like 20 m.

The purpose of this article is really to give newcomers to the hobby a few pointers and to share my enthusiasm and that of other DXers with them in the hope that they will get the bug and join us in chasing DX.

So let's first of all talk about gear. What sort of station do you need to work "real" DX? Well basically anything will do, but obviously the better the gear, the better the antenna, the more likelihood you have to work DX. Yes you can work DX with 10 W and a dipole antenna but a good antenna and rig makes it easier. You can do it with QRP (low power) say 5 W but again running the full legal limit will enable you to be heard better, especially if there is QRM around.

Most DXers will agree with me when I say that the best investment you can make for your station is a good antenna system. This ideally should cover all the main HF bands. You need antennas for 80 and 40 but also for 20/15/10 and the WARC bands (10, 18 and 24 MHz) too. Now that the sunspot count is going up, and is often well over the 100, you will soon be able to work solid DX on the higher HF bands for many hours of the day. However, a good antenna for 80/40 is also very important. Getting the antennas as high up in the air as you can is critical. At 40 feet or so most antennas, especially beams, will really start to perform. Once you get really serious, and have the money and the space too, you can install some big mono band beams and be one of the big signals out of New Zealand. But you can start with a dipole or G5RV. Then as you get more enthusiastic or more frustrated, when you hear other ZLs working stations you can't even hear, you can advance to a bigger antenna system. The current theory is "go for height". Better a dipole at 100 feet than a beam at 20 feet. However I should say that I've worked close on 300 countries and never had an antenna over 35 feet on any band. But when I visit stations with big high antennas I can certainly notice the vast improvement over my set up. A good example is using the Rhombics or 1000 foot long V beams at Quartz Hill near Wellington where low noise and good antennas put you into another world of ham radio. The site can be rented from the WARC (Wellington Amateur Radio Club). Contact them or me if you want a real DX experience.

Still another characteristic of DXers is that they are never satisfied. The rig or antenna that last year was the best that money could buy and that you would never need to replace in a lifetime is starting to look like it needs an upgrade 12 months later. I have always used older second hand rigs like FT-101, TS-520s and my favourite TS-50. But having just obtained an FT-1000MP, which has to be a Rolls Royce of rigs, both quality and price wise, I have to admit it is easier and nicer to do it with a "great" rig. But really it has to be questionable whether the difference to all intents and purposes between a second hand $250 rig at a junk sale or a $5000 plus rig is really all that significant. And at least with the savings you can get a pretty good antenna system.

Anyway let's talk about DX and the challenges that it can offer. DXing can be competitive and you can get recognition for your accomplishments in chasing DX through one of amateur radio's best known certificates. I am referring to the DX Century Club or DXCC as it is more commonly known. The ARRL in the USA awards DXCC to any amateur who can prove that they have worked amateurs in at least 100 different countries. 100 countries are only the start however. There are just on 330 countries recognised by the ARRL DXCC Committee at the moment so real enthusiasts don't just have to stop at 100 countries. They try and work as many countries as there are and then aim to get onto the DXCC Honor Roll. This is a select group of amateurs who have worked just about every country in the world. There are a number of amateurs who have reached that level in New Zealand but the most famous of all was the late Jock White ZL2GX the first amateur in the world to work 300 countries.

Not satisfied with working 100 countries other DX enthusiasts try to obtain DXCC on five bands. This is called 5BDXCC. They can also try to get DXCC on CW, QRP or RTTY. The challenges never end if you want to chase DX and obtain awards and recognition for doing so.

So what constitutes a country for DXCC purposes? All of us know there are not really 300 countries in the world. In simple terms a country is any place the ARRL DXCC Committee accepts as a country for DXCC purposes. They have a number of criteria and the committee meets from time to time to discuss the status of different countries. Some new ones are added from time to time and others are deleted. New Zealand itself consists a number of countries. ZL7 Chatham Islands is a different country from New Zealand itself. Kermadec Island ZL8 is another country again. The Vatican State HV is a separate country from Italy for DXCC and Hawaii KH6 a different country from the USA.

Full details of the countries that qualify for the DXCC award can be found in this edition of the Call Book.

So you've decided that you want to chase DX. How do you go about it? In DX terms it's quite simple. You just listen, listen and then listen some more. Listening is about the best thing a prospective or even an expert DXer can do. Listening will let you know for example what band conditions are like, what the propagation is like, when bands are open, which band is best to use.

As in any other hobby it also pays to do some homework first. This includes talking to other people interested in chasing DX. There is sure to be some at your local radio club. You can meet them on the air or join one of the special DX nets where DX information is exchanged. You will also find information in the DX column in Break-In and in other similar amateur radio publications. Every amateur radio publication has a DX column of some form. This shows how popular DXing is all over the world. Just about everywhere you find amateurs you find keen DX enthusiasts.

Another way you can find out when DX can be contacted is by checking the propagation charts in Break-In. They give a good indication of when bands are likely to be open to the most popular parts of the world. If you have a computer you can get programs that allow you to do your own propagation forecasts. I have several inexpensive ones and I find they are mostly right about when I am likely to hear stations from other parts of the world.

Some people work DX just for the fun of it and are not interested in the competitive element of it or in obtaining QSL cards from the stations they have worked. They get a thrill out of talking to a fellow amateur in say Kenya and then being able to share that excitement with others. But really keen DXers who want to obtain DXCC or get on the Honour Roll won't be happy until a QSL card from the exotic DX station is sitting on the table in front of them. Sometimes this can be expensive.

As a DXer you will soon learn what an IRC is and what green stamps really are. They used to say in prison, so I am told, that cigarettes were a universal currency. In the world of DX the universal currency is IRCs and green stamps. So what are they? An IRC is an International Reply Coupon. An IRC can be exchanged at your local post office for a stamp that will get your letter airmail to most parts of the world. It is not uncommon for you to have to send a couple of IRCs at $1.80 each to a rare DX station overseas in the hope that you will get a QSL card back. Many IRCs are never given to post offices however. Rather like an extended game of pass the parcel they just seem to go from ham to ham all round the world. I have a number in my collection at the moment that go back to 1970 and I understand they are still in use. On the other hand there is a certain attraction about the use of green stamps. They are US Dollars. In many countries green stamps are more popular, and more exchangeable than IRCs. I have heard some hams complaining that they should not have to send IRCs or Green stamps and that the DXer at the other end should just meet the cost themselves, in an ideal world that would be true.

However picture a ham in some rare location like Nepal getting 1000 or 2000 QSL cards each month or even you getting that number yourself. Paying a dollar a time to send a QSL card back would soon become very expensive. Hence it is now accepted that if you want a QSL card, especially

from a rare station, you may have to at least help to meet the cost of it being sent to you. Many hams use the QSL Bureau and NZART provides an excellent and free service for its members. But normally this is very slow. A year or two to get a QSL card is not at all uncommon. Many rare countries don't even have a QSL bureau. Others only let members use their QSL bureau. The same applies with DXpeditions. This is when a group, but sometimes an individual, goes to some exotic location and activates it so that others can work a new country. These DXpeditions can cost big dollars. The DXpedition to ZL8 Kermadec Islands in May 1996, which I was part of, cost over $40,000. With an estimated 40,000 QSL cards to send out too you can imagine the postage cost if we had to meet all those costs ourselves.

If you want to get a QSL card one of the most important and obvious things you can do to improve your QSL return rate is to fill in the QSL card correctly. Get the details on your card right. Band, mode, signal report and, most of all, the time. A convention amongst DXers is that they all use UTC or universal time. It is useless working a station in some rare location and sending a QSL card with the time listed as 8.30 pm New Zealand. Many DX stations if they can't easily find the contact in the log will just stick your QSL card in the rubbish. You must use UTC for all QSO times. Get the time right too. To get the UTC time listen to WWV on 5, 10 or 15 MHz. They announce the time every minute, 24 hours a day so you can be sure your time will be right.

Learning a few key words in a foreign language will help too. Most overseas hams use English for making DX contacts so we take the use of English for granted. But you can guarantee that if you say a couple of words in the overseas station's language they will be pleased and comment on it. A ham in Japan welcomes even a simple Sayonra. There are books and tapes in many languages designed for ham use and I am happy to give details if you contact me. Writing a few phrases on the back of QSL cards in the language spoken by that station you have worked seems to work wonders. A Russian ham saying "Kia Ora Kiwi" certainly gets my attention and improves that station's chances of getting a QSL card too.

There is certain etiquette in working DX stations. It starts, of course, with listening to see who is on. A good tune round the bands will often locate new countries that you can call and work. Generally unless you have a big station it's better to answer people who are calling than to call CQ DX yourself although clearly it's not quite as simple as that. New Zealand is still regarded as a good DX catch for many overseas amateurs so a ZL calling CQ has got quite a good chance that some DX station will respond. It is a little less likely that this will occur if you live in a country full of amateurs like Japan or the USA, or you don't have a really big signal.

A well-equipped DX/Contesting station.

The first thing you must do when listening to a DX station calling CQ, for example, is see if they are giving a general or a directional call. A directional call would be CQ Japan or CQ Africa. You are not likely to be too popular if you respond to such a call if you live in ZL. However if the station gives a general CQ call or calls CQ South Pacific then clearly that station is looking for contacts in this part of the world and you are welcome to respond. Sometimes the station will be working "split". That means the DX station will call on one frequency but listen on another frequency. This is so all the stations calling on that one frequency do not blot out the frequency the DX station is using. Listen carefully and respond on the correct frequency and you are likely to get an answer. Commonly DX stations will say "listening 5 up" or "listen 5 to 10 kHz up". You then have to transmit higher in frequency if you are to succeed in being heard.

Normally very rare DX stations are easy to find. The simplest way, especially if conditions are good, is just to listen to see if there are any particular frequencies where there appears to be sheer pandemonium. Thousands of stations, or so it seems, are all calling at the same time. This is called a pile up. And it can be very frustrating because normally in a pile up the DX station will answer the strongest stations first and it can takes hours or even days before they appear to hear VK or ZL stations. A common frequency to hear pile-ups and split frequency operation is 14195 or 21295. These are both very popular DX frequencies.

One way to beat the pile up is to join a DX net. These nets give DX operators the opportunity to work stations in a controlled way with a net control station that acts as MC and thus ensures that even the little stations get a crack at the DX stations. Some nets are well run and others could do with some improvements. Some people hate them, some love them but most, I think, would see them as a mixed blessing. DXing like any hobby does depend on individual integrity. You know if you had a genuine contact with the station. You know if the net control "helped" you beyond what they should have done and it is over to you to decide if you want to claim that contact or not. The best policy is, if in doubt don't claim it. Most nets, however, are well run. They guard their good reputations and don't want to put them into doubt.

There are a considerable number of DX nets that you can check into. They all welcome ZL stations. But two I like to use are the 14222 net at 0530 UTC and the ANZA (Australia, New Zealand, Africa net) that meets every day on 14183 at 0500. In both cases the net control is a VK or ZL station so you can be sure of a warm welcome. For new comers especially, these are an excellent way to get to work a lot of new countries in double quick time. Another good way is by taking part in contests. In March 1996 I took part in the CQ WW WPX contest. This is an all band contest with the aim to work as many different DX prefixes as you can. I worked over 1300 stations in 134 countries in 36 hours of operation over one weekend. If you are a new comer to DX then a contest like this one may get you a considerable number of new countries in a very short period of time.

I have met quite a number of DXers over the last few years. One thing I have found that many of them have in common is a clear focus. They set goals for themselves. My favourite example of goal setting is Graham ZL3NZ who set a goal of working 200 countries in just 20 weeks from the moment he got his licence. He got 198 countries during the period, which is a terrific achievement.

If you live in the Wellington, Auckland or Christchurch area and you have packet radio you may be able to access your local packet cluster. This can be a good way to meet other DXers and exchange current DX information with them.

I would also recommend that you do some reading. DX columns are good. There are also a number of magazines dedicated to just DX. On the Internet there is tons of DX information. There are also a number of books on how to improve your DXing skills. One I can recommend is The Complete DXer by Bob Locher W9KNI. A great book on DXing and techniques that even experts can learn from and it's available from NZART, PO Box 40-525, Upper Hutt.

Some people say that the Internet has or will kill ham radio and especially DXing. My view is quite different. I see the two as complimentary. In fact I have often used the Internet and Email in particular to correspond with hams overseas either to establish an initial contact or to exchange information or photos that you can't do so easily over the air. In fact I exchanged Emails with Villi TF3DX in Iceland for over 12 months before I was eventually able to work him on 20 m CW and then confirm the contact by his QSL card for my DXCC award.

DXing like any aspect of amateur radio is what you want it to be. You can work a few overseas countries to find out about what life is like there. You can get awards for working 100s of countries. You have the chance to compare your station with other stations in your area to see if you can get through first or even at all. You can do it 24 hours a day or an hour or so a week. One thing is sure DX is something you have to experience to appreciate. Chasing DX is not a bug but more an addictive disease!

If you are interested in finding out more about DX you can talk to one of your local DXers, join the ZL DX net or drop me a line. We are all keen to encourage more people to follow this exciting aspect of the hobby and to help you get the same fun out of it that we do.

EMC—Electromagnetic Compatability

by BOB VERNALL ZL2CA

Electromagnetic compatibility (or EMC for short) may sound as if it is a new topic, but it has actually been around ever since electrical equipment was first developed. Electricity, electronics and radio each have numerous applications, but there needs to be recognition of compatibility between various systems. In the case of amateur radio, the possible impacts of operating transmitters are perhaps the most obvious subject to consider for compatibility, however EMC can also crop up with various other situations, where a disturbance to normal operation is noticed. The following list of EMC situations shows the wider scope of EMC in amateur radio:

- to have a contact with a selected amateur station, but with a minimum of disturbance to or from other amateur stations;
- to have an amateur contact without disturbance with radio services in other bands, such as broadcast radio or television reception;
- to have an amateur contact without receiving disturbances from radio services in other bands, such as from broadcast radio or television transmissions or mobile services;
- to have an amateur radio contact without causing disturbances in nearby electronic apparatus, such as causing extraneous noises in hifi amplifiers or telephones, or causing errors in computers;
- to have an amateur radio contact without receiving disturbances from other electronic apparatus, such as hash from switch mode power supplies or computers.

Should EMC problems arise then there is usually some sort of trade-off among:

- the choices of EMC treatment; and
- the effectiveness of a given EMC treatment; and
- the cost of a given EMC treatment.

There should be very few, if any, circumstances where an amateur operator is forced to cease operation solely because of EMC difficulties. The end objective of clearing EMC problems should be to develop a practical result that is acceptable to all affected parties. There are advantages for amateur operators who are conversant with EMC causes and cures, as they can put their knowledge into practice should an EMC problem crop up with their station, or help others.

NZART members have recourse to being able to ask Branch EMC Officers for advice and assistance, and indirectly this includes having access to collective knowledge, experience and information within the Association.

This is a summary article on EMC for the NZART *Call Book*. The following sections briefly cover some of the EMC topics in amateur radio.

Some basic physical factors

EMC is fundamentally to do with electric or magnetic energy interactions. It is generally desirable to keep one circuit sensibly isolated from another, but sometimes coupling may arise in unforeseen ways. Coupling could be by any or all of the basic mechanisms, namely:

- Conduction (by electron currents flowing in conductors);
- Induction (by way of electric or magnetic flux linkages);
- Radiation (by way of electromagnetic fields).

Radiation is, of course, an intended part of communication by radio, so the EMC challenge is to carry out amateur radio activities with minimal unwanted interaction with other equipment or services.

In the vicinity of a transmitting antenna there are magnetic and electric energy fields that are a complex combination of reactive (stored) and radiated (outgoing) components. The specific reactive and radiated components depend on the type of antenna. The strength of the near field falls away quite rapidly with increasing separation from an antenna (that is transmitting). *Increasing the separation distance is always a winner for reducing EMC problems.* Even with EMC problems inside the shack, like one piece of equipment affecting another, it is often surprising that even a modest separation can achieve a significant reduction in the original problem.

When it comes to suppressing unwanted signals, it is usually best to work on finding the root cause and trying to stop the unwanted signal from travelling away from the source. While prevention is better than cure, if the unwanted signal can not be prevented from developing then the next strategy is to minimise the ways in which it may spread.

EMC countermeasures include the following techniques:

- Shielding (solid metal, even double screening);
- Bypassing (usually a suitable capacitor);
- Filtering (suitable series and shunt components);
- Suppression (usually within the equipment itself).

Note that many types of plastic equipment cases are transparent to RF and have useless shielding properties.

Low pass and band pass filters

Filters are one of the basic electronic building blocks that can make the difference between communications being satisfactory or unsatisfactory. There are many types of filter, designed for many applications and for many source or load impedances. Refer to a radio handbook for details on filters. Proper use of filters is central to solving many types of EMC problem.

A low pass filter in the antenna feeder can be a useful accessory for an amateur HF station. Using a low pass filter between a transceiver and the antenna can give a certain confidence to operating, as it generally results in "overkill" of possible harmonics or other unwanted emissions that happen to fall within television channels used in a given area. Without the low pass filter, some unwanted signals may make it to the antenna and thence have a good chance of spreading to local television receivers.

Be wary of the specifications of cutoff frequency for low pass filters made for HF operation. Some types of low pass filter are designed for protecting television broadcast bands used in other countries. In Europe and the USA the lowest band edge for television is 54 MHz. However, in New Zealand, television Channel 1 has a lower band edge of 44 MHz. For New Zealand television Channel 2 the lower band edge is 54 MHz. For amateur HF operation, the low pass filter should pass all of the 10 m band, but then start cutting off at higher frequencies, and have high insertion loss at the lowest television channel in your area. It so happens that some USA manufactured low pass filters are designed to include control of unwanted signals that fall in the USA television receiver IF (in the mid 40 MHz range), and these types specify high attenuation above 41 MHz, so are obviously an appropriate type of low pass filter to use anywhere in New Zealand.

Band pass filters can be useful for some amateur situations, such as for reducing strong non-amateur signals from getting into and overloading amateur receiver front ends. Field days or contests with multi-transmitter multi-band operation are examples where extra RF filtering is very useful.

Antenna considerations

Antennas are really the key to achieving overall effective performance of an amateur station. For nearly all types of antenna, the radiation efficiency and general effectiveness improve with antenna height above ground-level. The following factors can apply to high antennas:

- DX performance is usually better, on any band;
- For receiving, gives some separation from local sources of QRM;
- For transmitting, gives less exposure to ground level equipment or people;
- Can run lower transmitter power and still sustain communications.

Ground-mounted vertical antennas have a reputation for having near fields that are "hotter" than those for other types of antennas. In a suburban situation, ground-mounted verticals tend to have strong radiation directly into nearby houses. By the reverse of what can happen on transmit, on receive these ground-mounted verticals can easily receive neighbourhood QRM. While verticals can be effective for communication on the lower bands, they are unfortunately also potential candidates for EMC problems in built-up areas.

Horizontal centre-fed dipole antennas are inherently much more balanced in operation than ground mounted verticals. Dipoles have surrounding flux patterns that are similar in shape each side of the centre feedpoint. The actual balance of the near field of a dipole depends on the angle from which the dipole is "viewed". A dipole viewed "side-on" presents good balance but viewed "end-on" the near side of the dipole predominates over the far side. On transmit there are unavoidable high voltages (and high field strengths) around the dipole ends. This is also the case for any antenna with an "open end".

Loop antennas are inherently one of the most balanced of all antennas. Much of the near field flux is contained within the loop. A loop antenna has a more confined near field pattern than is the case

with dipoles. Loop antennas are widely reported as being quieter on receive than other types of antennas, yet are still effective for transmitting. This is basically due to the reduction in near field size and consequently reduced impact of neighbourhood QRM. Loop antennas tend to be the better performers in the tougher EMC circumstances. A one wavelength loop can also work on near multiples of wavelengths, and with a tuning unit it can be useful on most bands. A smaller sized frame loop antenna can be useful for reception, when sited in a low noise location and with orientation to make use of the nulls broadside to the frame.

Even if a balanced type of antenna is selected for use, the actual balance of the overall antenna system depends on how the feeder is connected. If the feeder is coaxial cable then using a balun (balanced to unbalanced transformer) is one way of minimising RF current from flowing back down the outer of the coaxial cable rather than into the antenna proper. As well, a balun can minimise noise from travelling up the outer of the coaxial cable and making reception seem worse than it would be without the unwanted noise.

Antennas can develop corrosion in connections, or fatigue breaks in some strands of a multistrand wire. A bad connection or intermittent touching in a fatigued wire not only impairs performance on receive, but can cause arcing when transmitting. Arcing generally results in broad band interference and is obviously an undesirable situation. Even the best filtered transmitter in the country can cause EMC problems if there are bad connections in the antenna. Well-constructed and well-maintained antennas generally give least EMC problems. As always, antennas should be mounted "in the clear" for best communication results and least invitation for EMC problems where RF power couples into surrounding structures.

Transmitting antennas and feeders should be kept away from television antennas or downleads as otherwise it invites large levels of amateur band signals arriving at the television receiver front end.

Active antennas

An active antenna can be useful as a receiving antenna, especially where there is some localised interference. Active antennas are usually physically small and smaller size is associated with a smaller near field. While a transmitting antenna usually has "full size" dimensions for radiation efficiency reasons, when used for receiving the larger size may be worse for pickup of local interference. The main criteria for an effective active receiving antenna is that the delivered result has atmospheric noise (QRN) dominating over electronic noise (noise from the active antenna devices). It is possible for a one metre whip and a JFET input pre-amplifier to be an effective active antenna over the MF and HF bands. Siting the active antenna away from houses and power lines can often deliver a better signal to noise ratio of a wanted radio signal than for reception using a "transmitting" antenna.

An active whip can be broadband. Frame loops can also be used as active antennas, but usually need to be tuned for best results. A fairly long feeder is possible as the headend can incorporate enough active gain to compensate for some line loss. A multiwire cable is needed if power supply, tuning voltages and band switching control all need to be fed from the shack. If the power supply is mains powered, it needs to be carefully designed to resist breakthrough of mains-borne noise. Obviously the active antenna electronics need to be designed for good linearity (low intermodulation) and survival from exposure to high signals (on-site transmission from another antenna). Great operational care should be taken to not inadvertently transmit into an active antenna, as such an experience usually renders it quite inactive until repaired. Transceivers with externally looped receiver input are ideal for selecting other receiving antennas, and not exposing any to risk of a possible direct connection to a transmitter.

Commercially manufactured transceivers

These days there are a great many commercially manufactured transceivers used by amateur radio operators. While it is a shame that home construction is less popular than in yesteryear, it should not be overlooked that the commercial "appliances" bring with them a reasonably high standard of performance in terms of suppression of harmonics and other types of unwanted emissions. Nearly all commercial transceivers include a good modulating stage, good signal filtering and a reasonably designed power output stage. In some countries there are regulatory requirements for limiting unwanted emissions, so commercial transceivers need to be designed for sufficient suppression of unwanted emissions if they are to qualify for marketing in those countries. The general result is that "big name" manufacturers tend to have good pedigree for EMC, as they seek international sales potential for their products.

Power supply considerations

The humble power supply should not be overlooked as a possible EMC situation. For example, on-site hum modulation can occur when RF gets into mains rectifier diodes. The resulting hum modulated signal then escapes by the reverse path of how it entered the power supply. Regulated power supply action may malfunction should RF be conducted into the circuit via AC or DC power leads. General treatment for HF EMC problems is to use 0.01 uF disc ceramic capacitors to "bypass" all leads and semiconductors, but of course they should be checked for not slowing down the response of electronic voltage regulators being able to follow variations in current drawn from the supply. VHF EMC problems should be treated with lower value "bypass" capacitors, or even metal shields. Do not skimp on safety ratings with capacitors used on mains leads (if a capacitor is not marked as being 230 V AC mains rated, then do not use it on mains wiring). Winding AC or DC leads on ferrite toroids can also be effective at reducing RF getting into a power supply or into equipment connected to the power supply.

Hum loops can be a problem when several separate pieces of equipment are connected up, as the grounded conductors in connecting leads provide a web of paths in which earth return current is able to flow. Power supply currents sharing conductors with low level audio signals is a recipe for coupling unwanted hum and noise to the audio feed. A very effective way of controlling power supply hum loops is by using split bobbin power transformers and two wire mains leads. A *split bobbin* transformer with a double insulated rating is legally able to be used with no earth wire, thus a potential hum loop via the mains earth is entirely avoided (for safety reasons this is *not* a technique to try with other than the proper rated split bobbin type of transformer). An isolation transformer in series with an existing power cord can be used with equipment that does not have a split bobbin transformer in its power supply. Isolation transformers have highest isolation at lower frequencies, and are limited by primary to secondary coupling capacitance in restraining higher frequencies from "jumping" the windings.

Switch mode power supplies may give high efficiencies and small package size, but there are inevitably "hash problems" for lower bands and harmonics of the switching rate to spot frequencies in several bands. One innovation in a commercial switch mode power supply is to have a front panel "tuning knob" so the switching rate can be optimised for minimal interference falling on a given working frequency (and needs readjusting as appropriate). Having a tuning knob does nothing to reduce the generation of hash or harmonics but arranges for them to be steered to least harmful spots on the dial.

Limitations of inductors

High frequency inductors are sometimes rated by the manufacturer for operation over a specified frequency range. This is a realistic reflection that unavoidable interwinding capacitance results in self-resonance at some relatively high frequency, and also for losses in core or coil former material. For frequencies above self-resonance the "inductor" appears to behave more like a capacitor, and explains why some filters may not deliver the expected results at higher frequencies. What is intended on a circuit diagram and what happens to an installed inductor may not achieve the intended result. Inductors need to be carefully selected if wideband performance is sought.

Limitations of capacitors

Capacitors also become self-resonant at some high frequency, when resonance occurs with unavoidable inductance of the leads and body. All lengths of conductor have some inductance, so it is impossible to build a perfect capacitor that would work at any frequency. However, capacitors are generally useful over a much wider frequency range than is the case for inductors. Disc ceramic capacitors are generally the best all round performers for HF and VHF work. The rated upper frequency range of mains bypass capacitors is sometimes no more than a few megahertz. Polystyrene or polypropylene capacitors are generally the lowest loss type of capacitor in the audio and lower frequency bands.

Ferrite and powdered iron components

There are many types of ferrite and powdered iron cores, and care is needed to end up with an appropriate type for a given application. There is quite a difference between selecting a core for a low loss RF transformer and using a core to attenuate unwanted RF signals. Transformer cores working at signal frequencies generally require selection of a given type

of core material that has low loss in the frequency bands of interest, especially where RF power is involved. With tuned transformers, high Q mode of operation is possible. However, for EMC applications ferrite material is generally selected as being well above the frequency range that it would be used as a transformer core, as low Q absorptive mode of operation usually gives best EMC performance. A low Q choke is like having an inductively coupled series resistor in the circuit.

Split-core ferrites can easily be fitted over existing wiring, and can effectively add a series impedance to higher frequency signals in the wiring. Split-core ferrites are widely used commercially, for the likes of reducing radiated noise from computer cables (especially in the VHF television bands). The split core (when fitted properly over a wire or cable) is equivalent to a one turn inductor with a toroid core, so not unexpectedly has fairly low impedance at lower frequencies, so does little to reduce conducted noise that happens to fall in the 160 or 80 m amateur bands. Several turns on a high permeability core are needed for there to be useful attenuation in the MF and lower HF bands.

While ferrite material usually has a much higher permeability than powdered iron, it generally does not have the good power and linearity ratings that are available with powdered iron. Powdered iron is a core material widely used for inductors in transmitter output filters, and most of these are in toroid (ring) form. Toroid cores are ideal for keeping most of the magnetic flux within a closed path (around the toroid) which not only leads to fewer turns for a required value of inductance (thus higher Q) but also minimises the flux that possibly links with other circuits. Flux leakage can lead to EMC problems.

Powdered iron cores are colour-coded as to recommended frequency bands, and care should be taken to select the right material and core size (power rating) to do the intended job. Any core that runs into saturation can worsen rather than improve the signal quality being applied to what is hoped to be a filter (saturating cores are similar in effect to peak clipping in amplifiers, so core saturation is obviously a situation to be entirely avoided in a filter circuit).

Telephones

Telephones are not intended to be used for RF modulation monitoring, but unfortunately too many of the newer types of electronic telephone have poor rejection of RF. *Telecom rental telephones (identifiable by a Rentel type number) were developed with RF immunity as one of the performance considerations. However stocks are running out and not being replaced. It is difficult to offer useful EMC advice on selections of telephones for private ownership, as there are so many types of telephones in use, with new ones appearing, and marketing for low cost likely cuts corners in the specific area of RF immunity.*

Controlling RF pickup in audio amplifiers

The input stages of audio amplifiers can act as crystal sets and detect RF that happens to arrive with good level at the input device. The detected parts of the RF envelope that are in the audio range can thus be amplified by subsequent audio stages. A useful way of reducing RF arriving at the first audio stage is to use a series resistor followed by a parallel capacitor to equipment chassis (local earth). A resistor of a few hundred ohms (but could be as much as 10 per cent of the amplifier input resistance) and a capacitor of a few hundred picofarads (but with a reactance that does not significantly reduce the level of the highest audio frequencies) can be very effective at controlling RF breakthrough. A suitable value series resistor is considered to be a more consistent performer than an RF choke (RFC). This is because the resistor retains its effectiveness over a very wide bandwidth, whereas the RFC may offer too little reactance to be effective at lower frequencies and become self-resonant below the desired upper frequency limit of operation.

Speaker leads also act as unintended aerials. RF pickup in the amplifier can be reduced by winding the speaker leads on a ferrite rod or ferrite toroid (this of course uses up some of the length of the speaker lead).

Computers and amateur radio

Many amateur operators use a computer in the shack. The computer motherboard involves a myriad of high speed digital signals for clocking and data processing, so there is usually very high potential for interference to be experienced by a nearby radio receiver. The power cord, keyboard cable, printer cable, mouse cable, monitor cable and COM port cables are also possible ways that "computer hash" can escape. The computer monitor (CRT screen) necessarily has magnetic deflection fields that do not stop at the outside of the monitor enclosure, and high bandwidth video drive signals may also be noticed on nearby radio receivers. Nearly all computers and monitors use switchmode power supplies, which can also be "hash generators" from a radio perspective.

Before considering purchase, look for FCC or CE markings or stickers on computers, or otherwise confirm compliance with known EMC standards. Taming interference within a computer is beyond the scope of these summary notes, and likely beyond the scope of any warranty offered on a computer. Having a portable radio with frequency coverage on bands of interest is one way of evaluating relative interference in a shop situation. Listening out on AM is much more informative than receiving on FM mode, and having an analogue S meter is useful for comparing levels. Some computers are quite acceptable for running in the shack alongside radio equipment. However, a "bad" computer can be an irritation to amateur radio operation.

Some switched mode power supplies have little or no internal RF filtering and these can be quite bad for causing local interference. Fitting an external mains filter is generally not as effective as having the filtering components inside the computer case. One way of improving such a situation, but without getting down to soldering iron level, is to change the power supply module for one that is known to include RF filtering. Many types of power supply can be directly interchanged, as there is a common standard for plugs and voltages. The main things to look out for is whether the power supply is AT or ATX, and whether the power rating is sufficient.

Split core ferrites are widely used for controlling unwanted signals on cables attached to a computer. However, the suppression achieved is higher in the VHF broadcast bands rather than the MF or HF amateur bands. Several turns on a high permeability core is needed for best suppression at HF.

For radio data modes such as RTTY, Packet, AMTOR or PACTOR, it is easy for "buzzing noise" to get into microphone circuits unless audio isolation transformers are used (no conductive path between input and output, like a "braid-breaker"). Telephone style isolation transformers are ideal for using in a radio interface unit, as they have relatively high voltage isolation specifications. PTT control can be implemented with a suitable opto-isolator. Having a means of adjusting audio level is also handy, as computers can generate volts of audio drive and microphone inputs can easily be overloaded.

A laptop PC can have a very low level of overall radio noise. LCD displays are lower energy than cathode ray tubes, and lap top PCs generally have compact and well-shielded modular construction. In some cases an external switch mode spower supply can be the worst interference generator in a laptop PC setup. An external power supply can be replaced by a low noise linear regulated power supply with the same DC output.

NZART
working for you—publications, videos, information

AREC AMATEUR RADIO EMERGENCY COMMUNICATIONS

MISSION STATEMENT

To be the preferred provider of emergency communications to New Zealand Emergency Services.

The AREC was formed in 1932 following a devastating earthquake in Napier. Today, the AREC consists of 74 Sections throughout New Zealand, each with its own Section Leader who is responsible for the training and conduct of the Section. Each Section is attached to a Branch or Branches of NZART, from where members are drawn.

Management of the AREC is vested in a National Director who is appointed by NZART Council. The National Director likewise appoints a Deputy, Secretary, Training Officer and Managers for the four districts. These eight people form the AREC Management Group.

The current objectives are:

★ To train and provide communications personnel, skilled in assisting organizations during emergencies.

★ Maintain a close liaison with the New Zealand Police for Search and Rescue.

★ Maintain a close liaison with Civil Defence.

★ Maintain a liaison with community organizations.

★ Provide and maintain equipment appropriate for emergency operations.

National Director AREC controls the issue of AREC Station Identifiers, formally known as "E" call-signs. AREC Sections are listed in this publication, in identifier order, along with their Section Leaders and Deputies. The Section Identifier, in its basic two letter form, is issued to the Sections' Leaders for their use only. AREC Station Identifiers for Section use are then issued by the Section Leader for that operation/exercise, with the following being normally reserved:

"A" = Section Base Station
"X" = Established Relay Stations
"Z" = District Control Stations

AREC operators engaged in SAR activities and operating on SAR frequencies are to use the call-sign allocated for that operation/exercise. This call-sign is to reflect the geographical location (nearest town) of the search area. Civil Defence's radio call-signs are controlled by the CD organization.

AREC emergency frequencies

The following frequencies are reserved for AREC use in emergencies:

1875–1900 kHz
3500 and 3900 kHz
7100 kHz
2 m and 70 cm repeaters

The general calling frequencies for AREC stations requiring assistance in emergencies are, 3900 kHz USB or local repeaters and these frequencies are normally monitored by AREC personnel during events such as storms, earthquakes and other significant events that could give rise to emergencies.

AREC Sections' Net

A monthly net is held on 3900 kHz USB at 1930 hours NZST or at 2030 hours NZDT on the third Monday of each month except December. This net uses the AREC Identifier of **ZL6E**, the AREC master station and is conducted as a contact net for those Sections wishing to seek information or report activities of an AREC nature.

Be prepared for an emergency—What to do—Some suggestions

As an Amateur Radio Operator, who may become involved with an emergency of some kind and having access to assistance via radio could provide timely intervention to those in distress. Preparations for such an eventuality would be good planning and the following suggestions are offered.

1. Be familiar with your local repeater services and frequencies, with a knowledge of the service area.

2. In the event of an SAR requirement, contact your nearest Police station, they will activate their system.

3. For Civil Defence requirements, contact either your Regional or District Councils.

4. Be familiar with your AREC representatives or Club officials, keep a list in the house and car.

5. Use the AREC call frequencies or break-in on any net and identify yourself and the emergency at hand.

When making a call for assistance, by radio, ensure that all the vital details concerning the emergency are passed to the station that is contact the emergency services, this will enable a more appropriate response.

Police, Fire, Ambulance check list

Type of incident

Road accident—type and number of vehicles involved.

—Number and extent of injured or trapped persons.

Type of medical emergency—heart attack, electrocution, etc.

What is on fire—car, building, stove, etc.

Kind of accident—car/truck, car/person, motorcyclist etc.

Hazardous chemicals involved—gases, liquids, fuel, etc.

Location of accident

Street or road name and number, rural number, highway number.

Cross street or road reference.

Suburb and city or town.

Any other geographical detail to clarify location.

Other information

Vehicle registration number—burglar, hit and run, etc.

Description of people—clothing, height, race.

Direction of travel.

(If you are making a telephone call to the emergency services, make sure the above information is gained from the person on the radio before making the 111 call.)

Marine distress call

Intercepting a "MAYDAY" call, briefly listen to see if any other station is responding, then endeavour to contact the distressed vessel on the frequency and mode they are using. Do not get them to change frequency. Ask for details of the distress and write down the details given.

Essential information

Where

Position, latitude and longitude, GPS information, any bearing and distance from geographical feature or place.

What

What is the nature of the distress?

What help is required?

What battery life or restrictions are on radio use?

What lifesaving equipment is on the vessel?

Has an EPIRB been activated?

What is the weather at the distress position?

Who

Description of distressed vessel, name, registration and size.

How many people in distress and their ages.

Colour of vessel and distinguishing marks.

Also record the time and frequency of the distress call. If practical get another person to telephone in the information and stay on the frequency to gather other essential information. Tell the operator what assistance you are giving to help them.

Desirable information

Voyage details

Departed time, date, destination. Last known exact fix, if position unsure.

Medical details

Any specific medical needs or conditions?

Extent of injuries.

Safety equipment

Food and water available.

Other types of radio equipment, VHF, HF.

Flares and types available.

The station called Mayday, in fact, might not hear you calling because of propagation or other factors, but continue to listen, they could transmit their position details blindly. Regardless, report the distress call to the coast guard or Taupo Marine Radio stating the time and frequency, when first heard and any other details of the signal, background noises or how genuine it sounds.

Earthquake

In the event of a moderate or greater earthquake felt in your location, your assistance, through AREC, could be valuable to Civil Defence. Switch to your local VHF repeater and monitor for activity about the event. An AREC station may be requesting reports from stations on what has occurred in their locality. AREC will be gathering this information to put together a "Felt Report" (refer to Earthquake Reporting). This information is then relayed to Civil Defence to help them access the extent of damage that may have resulted.

Apart from estimating the intensity of the earthquake, any information about the state of the utility services and any other significant details known about your surroundings will be useful.

EARTHQUAKE REPORTING
THE MODIFIED MERCALLI SCALE OF INTENSITY OF EARTHQUAKES

Introduction

The severity of an earthquake can be expressed in two terms, namely intensity and magnitude. These two terms are different and are often confused.

Intensity is based on the effects of ground shaking on people, buildings, contents and natural surroundings and varies from place to place within the disturbed region. This observed effect depends on the location of the observer with respect to the earthquake epicentre (location within the earth's crust where the movement occurred).

Magnitude is related to the amount of seismic energy released at the hypocentre (point on the earth's surface directly above the earth movement). This measurement is made by and recorded on instruments (Seismograph) that have a common calibration, thus magnitude is determined instrumentally and uses the Richter Scale to indicate the magnitude. The Richter Scale bears little resemblance to how people perceive the intensity of an earthquake, thus the "Modified Mercalli Scale of Intensity" is measurable by people.

This scale is based on certain key responses being felt or observed by people who can then grade the intensity using this scale, and communicate this to others. When reporting an earthquake you should use this scale to convey the effects that had been felt in your location. When a number of reports are collected from an area and assembled in one place, a summary of this information then becomes known as a Felt Report (indicating the extent of the area it was felt over and what intensities were experienced).

Modified Mercalli Scale of Intensity

MM1

Not felt by humans, except in especially favourable circumstances, but birds and animals may be disturbed. Reported mainly from upper floors of buildings more than 10 storeys high. Tree branches, chandeliers, doors and other suspended systems of long natural period may be seen to move slowly. Water in ponds, lakes, reservoirs etc may be set into seiche oscillation.

MM2

Felt by people at rest indoors, especially by those on upper floors or otherwise favourably placed. The long period effects listed in MM1 may be more noticeable.

MM3

Felt indoors, but not immediately identified as an earthquake by most Vibrations may be likened to the passing of a truck. It may be possible to estimate the duration, but not the direction. Hanging objects may swing slightly.

MM4

Generally noticed indoors, but rarely outdoors. Light sleepers may be awakened. Vibrations may be likened to passing heavy traffic, or to the jolt of a heavy object falling or striking the building. Walls and frame of building are heard to creak. Doors and windows rattle, liquids in open vessels may be slightly disturbed. Standing motor cars may rock, and the shock can be felt by their occupants.

MM5

Generally felt outside, and by most indoors. Most sleepers awakened. A few people frightened. Direction and motion can be estimated. Small unstable objects may be displaced or upset. Some glasses and crockery may be broken. Some large windows cracked/damaged. Hanging pictures move. Doors and shutters may swing. Pendulum clocks are affected.

MM6

Felt by all. People and animals alarmed. Many run outside. Difficulty experienced in walking steadily. Slight damage to masonry "D". Some plaster cracks or falls. Isolated cases of chimney damage. Windows, glassware and crockery broken. Object fall from shelves, pictures from walls. Heavy furniture moved. Unstable furniture overturned. Small church and school bells ring. Trees and bushes shake, or are heard to rustle. Loose material may be dislodged from existing slips, talus slopes or shingle slides.

MM7

General alarm of people and animals. Difficulty experienced in standing. Noticed by drivers of motorcars. Trees and bushes strongly shaken. Large bells right. Masonry "D" cracked and damaged. A few instances of damage to masonry "C". Loose brick and tiles dislodged. Unbraced parapets and architectural ornaments may fall. Stone walls cracked, weak chimneys broken, usually at the roof line. Domestic water tanks burst. Waves seen on ponds and lakes. Water made turbid by stirred up mud. Small slips, caving in of sand and gravel banks.

MM8

Alarm may approach panic. Steering of motorcars affected. Masonry "C" damaged with partial collapse. Masonry "B" damaged in some cases. Chimneys, factory stacks, monuments, towers and elevated tanks twisted or collapsed. Panel walls thrown out of frame structure. Some brick veneers damaged. Decayed wooden piles broken. Frame houses not secured to foundations may move. Cracks appear on steep slopes and in wet ground. Landslips in roadside cuttings and unsupported excavations. Some tree branches may be broken off. Changes in the flow or temperature of springs and wells may occur. Small earthquake fountains (fissures).

MM9

General panic. Masonry "D" destroyed, masonry "C" heavily damaged, sometimes collapsing completely, masonry "B" seriously damaged. Frame structures raked and distorted. Damage to foundations generally. Frame houses not secured to foundations shifted off. Brick veneers fall and expose frames. Cracking of ground conspicuous. Minor damage to paths and roadways. Sand and mud ejected in elevated areas, with the formation of fissures and sand craters. Underground pipes broken. Serious damage to reservoirs.

MM10

Widespread panic. Most masonry structures destroyed, together with their foundations. Some well-built buildings and bridges damaged. Dams, dykes and embankments seriously damaged. Railway lines slightly bent. Concrete and asphalt roads and pavements badly cracked or thrown into waves. Large landslides on river banks and steep coats. Sand and mud on beaches and flat land moved horizontally. Large and spectacular sand and mud fissures. Water from rivers, lakes and canals thrown up on banks.

MM11

Wooden frame structures destroyed. Great damage to railway lines and underground pipes.

MM12

Damage virtually total. Practically all works of construction destroyed or greatly damaged. Large rock masses displaced. Line of sight and level distorted. Visual wave motion of the ground surface reported. Objects thrown upward into the air.

Masonry categories

"A"

Structures designed to resist lateral forces of about 0.1g that satisfy the New Zealand building code 1955. Typically, well reinforced ferro-concrete. All mortar is in good condition and the design and workmanship is good. Few buildings erected prior to 1955 can be regarded as category A.

"B"

Reinforced buildings of good workmanship and with sound mortar, but not designed in detail to resist lateral forces.

"C"

Buildings of ordinary workmanship, with mortar of average quality. No extreme weakness, but neither designed nor reinforced to resist later forces.

"D"

Buildings of low standards of workmanship, poor mortar or constructed of weak materials like mud brick and rammed earth. Weak horizontally.

The R-S-T System

Readability

1—Unreadable.
2—Barely readable, some words distinguishable.
3—Readable with considerable difficulty.
4—Readable with practically no difficulty.
5—Perfectly readable.

Signal Strength

1—Faint signals barely perceptible.
2—Very weak signals.
3—Weak signals.
4—Fair signals.
5—Fairly good signals.
6—Good signals.
7—Moderately strong signals.
8—Strong signals
9—Extremely strong signals.

Tone

1—Harsh, broad hiss, no perceptible tone.
2—Harsh, broad hiss, just perceptible tone.
3—Harsh, broad non-sinusoidal tone.
4—Harsh, broad tone, badly hum-modulated.
5—Poor sinewave, badly hum-modulated.
6—Good sinewave, pronounced hum modulation.
7—Good sinewave, definite hum modulation.
8—Excellent sinewave, just perceptible hum modulation.
9—Perfect sinewave.

The "tone" scale is used for reporting the amount of hum on a CW signal. If the signal has chirp, the letter "C" can be appended. If the signal has key-clicks, the letter "K" can be appended. Most of the signals you hear will be T9.

compiled by
MURRAY GREENMAN
ZL1BPU

To many Amateurs, Digital Modes are another world that they would prefer not to contemplate, since it is expected to be difficult and expensive to get involved, requiring extensive computer skills, and lacking in interesting live contacts with other Amateurs. This is however not true at all, especially now. Use of Digital Modes, particularly HF Digital Modes, for real-time contacts is growing tremendously. Some of the newly developed modes are now in widespread use—PSK-31 especially. VHF operation is mostly limited to packet operation with bulletin boards, and therefore more a "tool" than a means of communication, although some of the data modes—especially SSTV, PSK-31 and Hellschreiber—are ideally suited to VHF. Use of VHF packet activity has dropped markedly since the internet took over most of the email, but the HF "chat" modes are more popular than ever.

Digital modes make use of some type of on-off keying to send data as "0"s and "1"s. For example, RTTY uses Frequency Shift Keying (FSK), sending "0"s on one frequency, and "1"s on another. Morse and Hellschreiber send dots as carrier, and gaps between dots as no carrier. PSK-31 sends "0"s and "1"s by switching the carrier phase, which you can imagine is the same as swapping the leads to the antenna at the data rate.

Most digital modes use a coding system, which means that the letters and numbers (or voice sounds or picture colours) are represented by a number, which is transmitted as "0"s and "1"s. This improves the efficiency, but reduces the resistance to errors. RTTY (which uses the CCITT International Alphabet ITA2), PSK-31 (which uses the G3PLX Varicode), Pactor (which uses ASCII, also known as ITA5) and digital voice (using a vocoder) are examples of coded modes. FAX, SSTV, and Hellschreiber are examples of uncoded modes.

Many of the newer modes use an error correction system to ensure that the data arrives intact despite problems in the propagation path. This error correction takes one of two forms—Automatic ReQuest repeat (ARQ) or Forward Error Correction (FEC). Some modes even use a combination of FEC and ARQ.

ARQ requires a two-directional link, where each "packet" or block of data received is checked for errors and a request for repeat transmitted back if necessary. These modes are characterised by alternate brief transmissions from each end of the link, and are not suited to broadcast or net operation. Examples are Pactor and VHF Packet.

FEC has the advantage that the information to reconstruct the data is transmitted along with the data, so no repeats are required. This is better for net operation. Some FEC types are extremely robust. Uncoded modes do not need or use error correction, as they are generally robust by nature; in other words an error is seen as a blemish, rather than a completely different image, character or sound.

Digital mode software

Many of the Digital Modes discussed below can be operated with nothing more than a PC with a sound card, with very high performance. The sound card is used to send and receive audio tones which are used with an SSB transceiver. See reference[1] for details of a freely available Guide to PC Modes. All the software mentioned in the Guide is freely available on the internet, and links to the software are provided. Other modes, such as Pactor and VHF packet, typically require an external module, either a modem or a modem and controller combination called a "TNC" (terminal node controller).

Baud, bps and wpm

The Baud rate of a digital transmission is the rate in Hz at which the basic data symbols are switched on the transmitted signal. For example, RTTY operates at 45.45 baud. The bit rate, in Bits Per Second (bps), is the actual data rate entering or leaving the modem. For various reasons (compression, use of multiple carriers etc.) this may well exceed the baud rate. For example, MT63 has 64 carriers, and achieves 640 bps at only 10 baud. The text transmission rate in Words Per Minute (wpm) depends on how many bits there are per character (there are on average six characters per word, including a word space). For example, 45.45 baud RTTY is 45.45 bps and since there are 7.5 bits per character, operates at 6 characters/sec or 60 wpm. PSK-31 operates at 31.25 baud and achieves about 50 wpm. Feld-Hell operates at 122.5 baud, uses up to 49 bits per character, and is capable of about 30 wpm.

RTTY

The first digital mode to see widespread use in Amateur circles (after Morse, that is), RTTY (Radio Teletype) is a conversational or "chat" mode, and uses the ITA2 code to send a limited text alphabet, using frequency shift keying. Two tones are used, 170 Hz apart for Amateur applications. The transmission is about 450 Hz wide. Most Amateur operation is at 45.45 baud, while commercial services tend to be 50 or 75 baud. RTTY still has a wide following, and is a favourite for contests.

Perhaps the nicest sound card RTTY software is TrueTTY by Sergei UA9OSV. It has an excellent FFT tuning indicator and all the features one needs for simple yet slick conversations and even contests. It will operate all the common speeds and all the common shifts, and even operates PSK-31 in BPSK mode.

AMTOR

AMTOR is rather like RTTY, but includes extra data to enable some errors to be detected. It operates at 100 baud, but the actual text throughput is the same as 50 baud RTTY. It was developed from the commercial SITOR system by Peter Martinez G3PLX. Most AMTOR operation is ARQ, and is characterised by very short transmissions (about one second). AMTOR FEC is useful for bulletin broadcast and is used to call CQ. AMTOR is now very little used.

PSK-31

PSK-31 was developed recently as an RTTY replacement. It is a slick "chat" mode, but is much more sensitive than RTTY, and uses less bandwidth than almost any other mode. Designed by Pawel SP9VRC and Peter G3PLX, PSK-31 uses differential phase shift keying (BPSK or QPSK). Just one tone is used. In BPSK mode the data is transmitted without error correction, while in QPSK mode each symbol represents two bits, allowing a powerful FEC error correction technique to operate. The bandwidth is a mere 60 Hz.

PSK-31 is very popular, now more than RTTY, and has proved to be excellent for HF and VHF DX. It is not well suited to transpolar paths (like long path to Europe) as it is susceptible to ionospheric flutter due to the narrow bandwidth. It copes well with adjacent signals, fading and multi-path reception, and it is not unusual to work stations you cannot hear. Because of the sensitivity, low power is all that is needed.

There is a wide range of PC software for PSK-31,[2] from the simple G3PLX program PSK-31 SBW upwards. A good program to get started with is DIGIPAN, which has much simplified tuning requirements, and "point and click" netting.

MT63

MT63 is an amazing new mode that would not be possible without Digital Signal Processing. Sixty-four PSK carriers are transmitted all at once, each one carrying a different part of the transmitted signal. The data (which includes strong FEC) is spread across the width of the signal (typically 1 kHz), and also spread in time (typically 6.4 seconds), so MT63 is resistant to both time and frequency related interference.

The PC version by Nino IZ8BLY is simple to use, easy to tune, locks in to the signal effortlessly, and is extremely robust. It is very sensitive, and excellent for DX under poor conditions. Unfortunately MT63 is rather wide, and very aggressive (causes interference but is not much affected by interference), so needs to be used with care. MT63 is an excellent mode for transmitting bulletins.

Hellschreiber

Hellschreiber almost became a lost art, but is undergoing enthusiastic revival. Text and simple graphic symbols are transmitted uncoded, rather like sending the dots to a dot matrix printer. Because the signal has very high peak power compared with the average, and is interpreted by eye rather than by electronics, the mode is very noise immune and requires little power. It is also immune to most ionospheric effects. Since tuning is broad, it is simple to use, ideal for HF and for satellite working.

There are several Hell modes in general use, and more under development. Hellschreiber has a special appeal that occurs with no other mode except Morse—there is an immense "feel" that the operator has for the propagation of the arriving signal, and the uniquely recognisable "fist" (in this case "font") of the transmission. The user can choose any one of many fonts to transmit (even "Windows" fonts), and the data rate, typically 122.5 baud,

provides a good 25–30 wpm typing speed, depending on the font used. Big black fonts are best for DX, but tend to be slower.

The most commonly used mode is Feld-Hell, an on-off keyed CW mode which dates from the 1940s. Invented by Rudolf Hell, Feld-Hell uses a single 980 Hz tone. It is the ideal mode for 20 m, and performs well on other bands, satellites and moon-bounce. Feld-Hell is used for most Hell DX.

The most sensitive Hell modes are PSK-Hell and FM-Hell, invented by Murray ZL1BPU and Nino IZ8BLY, which transmit the dots as phase reversals for white and no reversal for black. PSK-Hell uses sinewave envelope phase modulation, and has two keying sidebands, while FM-Hell uses continuous phase FSK and has only one sideband. These are the best DX modes, are very sensitive and not affected by ionospheric flutter in the way PSK-31 is. Great for VHF DX too, as these modes are easy to tune and tolerant of drift. FM-Hell does not require a linear transmitter.

Duplo-Hell is a good candidate for 80 m, and other bands where noise and multi-path reception are the biggest problems. Duplo, invented by Nino IZ8BLY, uses two tones at 980 and 1225 Hz to achieve normal Hell speed, while using slower dots to reduce noise and multi-path echoes. It is not difficult to work VK on 80 m using Duplo-Hell.

The best Hell software is IZ8BLY Hellschreiber.[3] It operates seven Hell modes, includes a very good tuning display, and all the features necessary for good DX. It is really simple to install and use.

Fax and SSTV

These modes can also be operated with nothing more than a PC with sound card. Fax is very rarely transmitted on Amateur bands, although there is wide interest in receiving weather maps on HF (black and white) and weather satellite images (greyscale) on VHF. Both of these modes are straightforward with software like Christian Bock's WXSAT program. The resolution produced by this software is incredible. On satellite pictures it is often posible to identify the South Island lakes, or puffs of steam from White Island.

SSTV is a great way to share photographs, graphics and simple drawings with friends. The resolution is not very high, but the colour depth is good and the image content is restricted only by imagination and good taste. Start with one of the commercial PC shareware programs, such as W95SSTV or Chromapix. It helps if you have a scanner, digital camera or a good collection of digital images to send. SSTV is typically used to add interest to an SSB contact, and is also used on VHF FM, where picture quality is excellent.

PACTOR

A cross between Packet and AMTOR, PACTOR is an FSK system which provides strong error detection and ASCII text with an ARQ format. Efficiency is improved by a clever system where repeated damaged blocks of data are averaged until the check-sum is met, so one complete error-free block is not actually required for correct reception. Many of the newer HF multi-mode controllers offer PACTOR, and there are some applications for PC or other processor and external modem. At least one PC sound card receive-only program is available. Pactor operates at 100 or 200 baud, and switches between speeds as conditions permit.

PACTOR is very popular for bulletin board use, but it is rare to have a conventional contact using PACTOR. There are many Bulletin Board Stations (BBS) available on HF, some with connections to the Amateur Packet network, some even with internet connection for mail forwarding. PACTOR is also used commercially.

The WINLINK stations, for example, are fixed mail store-and-forward stations based around the world, with connection to the internet. Most stations operate PACTOR or PACTOR II, and each station has a frequency list that it scans every few seconds. These frequencies are mostly on 40, 30, and 20 m. These stations provide a service to marine and other mobile or portable operators, who estimate which band will provide propagation to the BBS station and call on one of the published frequencies. Once connected, the BBS controls operation just like a Packet system, and allows messages to be sent via the Amateur and Internet networks. Windows software is available to operate these links.[4]

Commercial modes

Some of the newer HF digital modes are only available with expensive commercial hardware. These include PACTOR II, GTOR and CLOVER. Unfortunately these modes are proprietary, so their use is not widespread.

PACTOR II is the most widely used of these modes, as it is compatible with the older PACTOR I and supported by many BBS. PACTOR II uses two carriers and operates at 100 or 200 baud, using various PSK techniques to achieve data rates as high as 800 bps with excellent sensitivity. It is an ARQ system just like PACTOR I.

GTOR is an adaptable ARQ system similar to PACTOR II, but includes a Golay error correction system and can operate at 300 baud. CLOVER is another adaptable ARQ system, but with four carriers and a selection of PSK modes. All these systems use compression techniques and can transfer binary files, but they are not able to operate with each other.

Operating frequencies

Narrow band modes (RTTY, PSK-31) are to be found at the lower end of the digital allocation on each Amateur band, for example on 20 m from 14.070 to 14.099 MHz. Wider modes and the BBSs are found at the upper end of the allocation, for example on 20 m from 14.101 to 14.130 MHz. On-off keyed modes such as Hellschreiber are found just below the digital mode boundary, for example at 14.063–14.065 MHz. MT63 is found at 14.347 MHz USB (Europe) and around 14.114 MHz.

Calling frequencies

RTTY

3.545 MHz (mark carrier)
7.045 MHz (mark carrier)

Hell

3.559 MHz (carrier)
10.135 MHz (carrier)
14.063 MHz (carrier)

Frequencies for most digital modes are usually quoted as the frequency the transmitter emits when idle. For RTTY this is the mark frequency—for Morse, PSK-31 and Hellschreiber the carrier frequency, or lower tone frequency. However for complex modes like MT63 and SSTV, the frequency indicated on the transceiver display is frequently used, since the tones transmitted and the sideband used are fixed by convention.

Packet radio

Packet radio utilizes a protocol known as AX-25, which defines an automatic system to transmit blocks of information (called packets) which include the data, message type, information as to who the data is addressed to and from, and a strong error detection system called a Cyclic Redundancy Check (CRC).

Packet radio is organised so that many stations can operate on the same frequency with limited interference. This technique is called Carrier Sense Multiple Access/ Collision Avoidance (CSMA/CA), which means that stations listen for other signals before transmitting to avoid collision, but cannot guarantee not to cause interference to stations that cannot be heard. This situation frequently happens when stations on opposite sides of town share a BBS station.

Most, but not all packets require acknowledgement (an ACK), and the sender will repeat the packet until a correct acknowledgement is received. This technique ensures that the data is received correctly and compensates for collisions and errors, but as the channel activity increases, the useful data rate slows down significantly as more and more time is spent correcting and sending requests for repeats (Negative Acknowledgements, or NACKs).

There is a special family of unacknowledged messages called an Unconnected Information (UI) packet that is widely used for beacon messages and the Automatic Position Reporting System (APRS) developed by Bob Bruniga WB4APR.[5]

The most common Packet format is 1200 baud AFSK using an FM transmitter. Faster systems, to 9600 baud and beyond, are finding increasing use, especially for satellite forwarding and dedicated links.

Most packet operation in New Zealand is on VHF or UHF—144.650, 144.675, 147.500 MHz, and 432.650, 432.675 and 438.300 MHz, using narrow band FM.

Packet BBS operation

There are many packet BBS stations in New Zealand, most with 2 m access, and many with 70 cm access. If you call them and connect, sending an "H" command will give you a list of commands to which the BBS responds. The list of commands and facilities on most BBS setups is extensive, but simpler functions like listing and reading messages, reading and sending mail, are simple and easily learned. Packet messages, either for general distribution (bulletins) or personal delivery (e-mails) are forwarded automatically between the BBS stations. ZL2WA acts as the "hub" for message distribution, and handles all the traffic in and out of New Zealand, using HF and satellite gateways. Most of the forwarding within New Zealand takes place overnight, using the National System on 70cm.

Provided you know the Packet e-mail address of the recipient, usually in the form callsign@bbscallsign, then using a BBS to send an email is generally as simple as typing:

SP ZL3ABC@ZL3AC

and then typing the message. Sending mail overseas is not much more difficult—you simply use an extended address form, such as:

SP G3ABC @ GB7BBS.#28.GBR.EU

where the longer address specifies the region and country as well as the home BBS of the recipient.

Data repeaters

To enhance the range and utility of packet radio, it is relatively easy to arrange for packet systems to repeat or forward data. In fact any packet station can act as a data repeater (called a "digipeater"). Unfortunately there is an extra delay in every digipeater that the data passes through, and unless the input and output is on a different frequency (called a "gateway"), there is also extra traffic on the radio channel, slowing down the throughput.

One answer is to use a hill-top data repeater, which is similar to a VHF voice repeater, but usually decodes and remodulates the digital data to clean up the signal. There is much less delay than with a digipeater, and of course the input and output are on different frequencies. Data repeaters are listed in the Call Book "Repeaters and Beacons" section.

An even better idea is to send the data to some remote point using a high speed link (UHF link, landline or even the internet). These techniques are used to connect BBS systems together for forwarding mail.

References

(1) "Amateur Radio Modes Using the PC Sound Card" is on a web site at http://members.xoom.com/ZL1BPU/ZL1BPU/EUREKA/home.html. You can download the complete guide and operate it from a floppy disc, by downloading the file http://www.qsl.net/zl1bpu/FUZZY/software/EUREKA.zip. This is something you give to your friends!

(2) PSK31 software available from the PSK-31 web site, http://aintel.bi.ehu.es/psk31.html.

(3) IZ8BLY Hellschreiber available from Nino's web site, http://space.tin.it/computer/aporcino.

(4) WINLINK software and information is available from http:// www.winlink.org/.

(5) See http://www.aprs.net/.

DX PacketCluster

by
MURRAY WOODFIELD ZL1CN
CHRIS HANNAGAN ZL2DX

The DX PacketCluster is a Packet BBS provided especially for DX operators. While it has the normal bulletins and mail facilities normally associated with a Packet BBS, it also has many other features of interest to DX operators.

For example, if anyone logged on to the DX PacketCluster hears some interesting DX, this "DX spot" can be put up on the Cluster for the benefit of any others who may be logged on. The others will see the DX spot in real time, and anyone interested can tune up and work the DX station. This is the prime purpose of the DX PacketCluster.

There are also other features such as WWV sunspot information which can be put up, a list of current DXCC countries with prefixes, headings and distances from your QTH, and sunrise and sunset information for each country.

Various DX bulletins are put up on the Clusters from time to time.

Note that the ZL2AQY-10 PacketCluster is connected permanently to a network of Clusters operating in North American and Europe. This means that information posted on the network is accessible to amateurs in New Zealand. Each of the other Clusters in New Zealand also receives this information as VHF propagation conditions permit.

The following is the information for those interested in connecting to a DX PacketCluster:

ZL2AQT-10 Auckland. Access through the Klondyke node or 144.65 simplex. Access also through the Internet: Telnet: zl2aqy.ath.cx:9000.

ZL1BN Auckland. Access through the Klondyke node or 144.65 MHz simplex.

ZL1HY-10 Walton. currently in recess.

ZL2NX Martinborough. Access through 6625 Wellington Data repeater, 7075 Wellington 2400 baud repeater, 5725 Manawatu Data repeater, 860 Mt Climie 70 cm 9K6 Data repeater and 5425 Mt Climie Data repeater.

ZL3DXC Christchurch. Access through 144.650 MHz.

Efforts will also be made to extend the network further, depending on the availability of resources.

If you are keen on DX on any band, including VHF and UHF, then the DX PacketCluster is for you. Even if you have no experience at Packet, you will benefit from connecting to a Cluster, and staying connected while you are tuning the band—you will even be able to put up spots yourself for the benefit of others.

Further information is available from the sysops, Murray ZL1CN, Mike ZL1HY, Eddie ZL2AQY, Lee ZL2AL, Chris ZL2DX and Graham ZL3NZ.

Murray Woodfield ZL1CN and **Chris Hannagan ZL2DX**

THE PROMOTION OF AMATEUR RADIO

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(Installation instructions are in a .txt file on the disk and printed inside the gift-folder.)

2. The **Guide** and the **Test Papers** can also be viewed and used on-line—by anyone. Visit the NZART web page:

http://www.nzart.org.nz and follow the links.

3. Both the **Guide** and the **Test Papers** can be downloaded in separate self-extracting files for installation on your own computer. Installation details are on the web page.

Downloading is recommended, so these documents can be used at any time.

Please Note:

1. These documents can be used as a source of hand-out notes for Instructors at Radio Classes. Copy-and-paste can be used to copy material into a wordprocessor then photocopied for class use—or whole pages can be printed off.

2. The **Guide** is NOT a replacement for the NZART *Basic Radio Training Manual.* They support and complement each other.

AMATEUR RADIO RECORDS

by JOHN WYSOCKI ZL2TWS

New Zealand VHF/UHF/SHF records 2001

Band	Frequency	Type	Stations	Date	Mode	Distance (km)
6 m	50 MHz	Overseas	ZL3VTV/1-EH7KW*	03/04/2001	SSB	19,921
6 m	50 MHz	Overseas	ZL3JT-N6XQ	04/03/2001	PSK31	14,268
6 m	50 MHz	E-M-E	ZL2BGJ-WA4NJP	08/09/1988	CW	13,256
2 m	144 MHz	Internal	ZL2ARW/p-ZL1BJB/p	03/02/1982	SSB	1,069
2 m	144 MHz	Overseas	ZL1HH-VK5ZEE	15/01/1986	SSB	3,420
2 m	144 MHz	E-M-E	ZL2BGJ-G3POI	26/05/1985	CW	18,821
70 cm	432 MHz	Internal	ZL2ARW/p-ZL1BJB/p	03/02/1982	SSB	1,069
70 cm	432 MHz	Overseas	ZL2TPY-VK4ZSH/p	13/01/1988	SSB	2,402
70 cm	432 MHz	E-M-E	ZL3AAD-F9FT	18/05/1980	CW	18,970
70 cm	425 MHz	Internal	ZL2TWS/p-ZL2ASF/p	31/01/1982	Video	373
50 cm	610 MHz	Internal	ZL2UGR/p-ZL2AJU/p	23/04/1988	SSB/FM	302
32 cm	925 MHz	Internal	ZL3VTV/p-ZL1AVZ/p	06/12/1998	SSB/FM	154
23 cm	1281 MHz	Internal	ZL1TGB/p-ZL1WTT	05/07/1998	FM/ATV	76
23 cm	1296 MHz	Internal	ZL2ARW/p-ZL1THG/p	30/01/1982	SSB	687
23 cm	1296 MHz	Overseas	ZL1AVZ-VK2FZ/4	30/11/1995	SSB	2,317
23 cm	1296 MHz	E-M-E	ZL3AAD-PA0SSB	13/06/1983	CW	18,657
13 cm	2304 MHz	Internal	ZL2ARW/p-ZL1THG/p	31/01/1982	NBFM	687
13 cm	2304 MHz	E-M-E	ZL2AQE-W3IWI/8	18/10/1987	CW	13,931
9 cm	3456 MHz	Internal	ZL2AQE/p-ZL2ARW/p	06/03/1983	NBFM	547
5 cm	5760 MHz	Internal	ZL1TBG/p-ZL1TPH/p	18/03/2001	CW	317
3 cm	10368 MHz	Internal	ZL1THG/p-ZL2BFC/p	25/01/1981	WBFM	390
3 cm	10368 MHz	E-M-E	ZL1GSG/p-DJ7FJ	12/03/1997	CW	18,340
1 cm	24000 MHz	Internal	ZL2AQE/p-ZL2AZQ/p	20/03/1988	MCW	126

Notes

(1) New Zealand 70 cm band has now been reduced from 420–450 MHz to 430–450 MHz. The Video (TV) record of 31/01/1982 on 425 MHz stays as a 70 cm record.

(2) New Zealand 13 cm band has now been reduced from 2300–2450 MHz to 2396–2450 MHz. The records of 31/01/1982 and 18/10/1987 stay as a 13 cm record. This band is now known as 12 cm band.

(3) New Zealand 50 cm band has now been reduced and changed from 610–620 MHz to 614–622 MHz. The record of 23/04/1988 stays as a 50 cm record.

(4) /p means portable operation.

(5) /# means operating in another state or district.

(6) * 50 MHz contact ZL3VTV/1-EH7KW, F2.

Moonbounce (E-M-E) records 2001

Frequency	Stations	Date	Mode	Distance (km)
50 MHz	OH2BC-XR0Y	19/09/1995	CW	14,000
144 MHz	K6MYC/KH6-ZS6ALE	18/07/1984		19,287
222 MHz	K1WHS-KH6BFZ	17/11/1983		8,154
432 MHz	ZL3AAD-G3SEK	12/03/1989		18,970
902 MHz	K5JL-AF1T	27/05/1990		2,384
1296 MHz	ZL3AAD-PA0SSB	13/06/1983	CW/SSB	18,773
2304 MHz	NU7Z-ZS6AXT	13/06/1999	CW	16,480
3456 MHz	WB5LUA-DL9EBL	04/06/1995	CW	8,531
5760 MHz	ZS6AXT-W7CNK	22/11/1999	CW	14,758
10368 MHz	ZL1GSG/p-DJ7FJ	12/03/1997	CW	18,340
24000 MHz	W5LUA-VE4MA	18/08/2001	CW	2,358

Notes

(1) /p means portable operation.

(2) /# means operating in another state or district.

For a copy of the rules to follow and how to claim a record contact:

The VHF/UHF/SHF Records Co-ordinator
C/- NZART
PO Box 40-525
Upper Hutt

or vhfrecords@nzart.org.nz

For record updates and rules to follow when claiming a record see:

www.nzart.org.nz/nzart/vhf and http://www.nzart.org.nz/nzart/vhf/rules.html

INTERNET RADIO LINKING PROJECT

guidelines courtesy Kitchener-Waterloo ARC

Operating Modes

Direct Connect

Where a repeater at one location (Node A) connects via the Internet with another repeater (Node B). With this type of link the two nodes or repeaters can be involved in the connection or resultant conversations. While repeaters "A" and "B" are connected, anyone attempting to connect with either node will be told by a recording that—"The node you are calling is currently connected to call-sign". All local traffic on each repeater will be heard on the other repeater as well.

Reflector Connection

A reflector is a computer that is not connected to any radio, it is connected to the internet allowing many repeaters to be inter-connected, redirecting received audio back to all other connected repeaters. At any given time there maybe 2 to 10 repeaters around the world interconnected via a Reflector.

With reflector use a gap of approximately 10 seconds must be left between transmissions, this allows:

- For the delays created by multiple Tone Squelch radios in the links between the repeater and IRLP link.
- users on other nodes a chance to check in.
- other nodes time to send touch-tone commands to drop their node.

Also allow a delay of approximately three second from the time pressing the PTT button at the start of a transmission.

With IRLP your transmission is now being heard on many repeaters around the world. To ensure intentions are understood give your callsign (phonetically) along with your name and QTH of the

repeater you are monitoring for a call. Mobile listeners may only pick out your prefix, your name or QTH.

When calling a station state your intentions by always identifying whom your call is meant for.

Example: Several stations including a DX station complete a QSO and you wish to contact the DX station. Action: VK3xxx this is Mike ZL3TMB in Christchurch New Zealand. By doing this rather than just using your call-sign you leave no question whom you wish to contact.

Making a direct connection

Listen on your local machine for 15–30 seconds before transmitting, ask if the repeater is currently in use. If all is clear, identify your self and give the node name or number you wish to call. Example: "ZL3TMB connecting to the Sydney node"—then enter the ON code for the node (node number then a 0) and release your PTT. Your local repeater will transmit carrier for a few seconds while waiting for the connection to be authenticated. Connections are confirmed with the transmission of the voice ID of the destination node and your node's voice ID on the destination repeater.

If your node is already connected to another node or reflector the greeting "your node is currently connected to ID of the connection" is played. In this case confirm if anyone desires the connection before closing it using the OFF code (node number then a 1 or just dial 73).

Once connected wait at least 15 seconds before transmitting because:

- The repeater may be in use, and your entry may have occurred between transmissions.
- The voice ID of your node is longer than the voice ID of their node, and the connection is not made until the ID is fully played.
- Their node computer may be slower, and hence take longer to process the connection than yours.

Press and hold the microphone PTT for a second and then announce your presence and your intention such as you are calling someone specifically or just looking for a QSO with another ham in that city.

If no response is heard, announce your call and your intent to close the connection then key in the OFF code (node number then a 1 or just 73). This a normal courtesy and a regulatory issue in some countries who may be connected to the reflector.

Some nodes are configured so you cannot connect to them if that repeater is active and the message "The node you are calling is being used locally" will be heard If your repeater is inactive for 4 minutes the connection will automatically close transmitting a voice ID disconnect message on both nodes.

Connecting to a reflector

Listen to your local repeater for local use and then announce your intention to use the Reflector and send the ON command. When you hear the confirmation ID always WAIT at least 15 seconds before transmitting as you are most likely now connected with many repeaters and a QSO could be in progress. If after 15 seconds you hear nothing, identify yourself and indicate you are listening to the Reflector from "City and Country". As your local repeater possibly now has world-wide coverage include your QTH.

Connections to the reflectors time out with no activity however many node owners set this to a long period so it is not unusual for repeaters with minimal traffic to stay connected to the Reflector for extended periods. When a node times out from a Reflector the message "Activity time out ... Reflector xxx, link off" will be played.

If you hear or wish to engage in a prolonged rag-chew on your local repeater out of courtesy to other node listeners drop the reflector.

Error messages

From time-to-time you may receive connection error messages, common ones are:

"The node you are calling is not responding, please try again later", caused by a loss of internet connectivity to one end of the call attempt.

"BEEP Error—The call attempt has timed out, the connection has been lost", occurs when a node is OFF-LINE. or there may be temporary net or node problems.

"The Connection Has Been Lost" , the internet connection has dropped.

If you are new to IRLP you should always consult with your local node sponsor to confirm the local guidelines on reflector connections in your area.

For a copy of the latest node numbers send a Self addressed envelope to:

Mike Barnes ZL3TMB
PO Box 218
Christchurch 8015
E-mail zl3tmb@nzart.org.nz

Direct from the IRLP web site http://status.irlp.net/

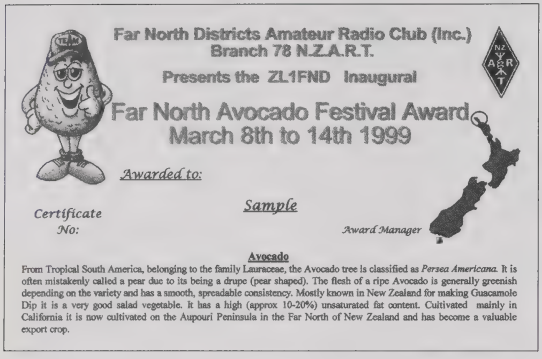
IRLP Nodes

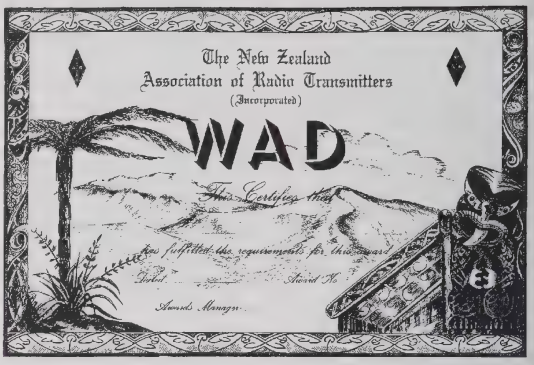
100	VE7RHS	Vancouver
101	VE7URG	Vancouver
102	VE7RNA	Chemainus
103	VE7VIC	Victoria
104	VE7RMT	Victoria
105	VE7RVN	Vernon
106	VA7OKN	Vernon
107	VE7MFS	Coquitlam
108	VE7TSI	Kamloops
109	VA7MAR	Mackenzie
110	VE7RGF	Grand Forks
111	VE7BHI	Port Alberni
112	VE7KU	Port Alberni
113	VA7LPG	Nanoose Bay
114	VA7HAM	Penticton
115	VE7REE	Penticton
116	VE7RAP	Comox
117	VE7RIA	Victoria
118	VE7PQA	Parksville
119	VE7UHF	Richmond
120	VE6RPT	Calgary
121	VE7DQC	Prince Rupert
122	VE6TE	Red Deer
123	VE6ZV	Calgary
124	VE6SBR	Edmonton
125	VE7FFF	Prince George
126	SARA	Province Wide
127	VA6IRL	Lethbridge
128	VE6MPR	Banff
129	VE6WRT	Calgary
130	VE6RMB	Ft. McMurray
131	VE6RJZ	Canmore
133	VE5CMR	Saskatoon
134	VE5RAD	Nth. Battleford
135	VE5SKN	Saskatoon
136	VE5CC	Saskatoon
137	VE5IOU	Prince Albert
138	VE5MLR	Meadow Lake
139	VE7RJZ	Invermere
140	VA7RDX	Vanderhoof
141	VE7RTS	Kamloops
142	VE7RAM	Tappen
143	VE7OG	Kelowna
144	VE7FRG	Mill Bay
145	VE6PRR	Peace River
146	VE6LGL	Grand Prairie
147	VE7RBH	Smithers
149	VE6TOT	Canmore (test)
150	VY1RW	Whitehorse
151	VY1RHJ	Haines Junctn.
155	VE5WM	Regina
156	VE7FFU	Terrace
157	VE5SCR	Swift Current
160	VE8YK	Yellowknife
162	VE8NWT	Yellowknife
165	VE4UMR	Winnipeg
166	VE7CAP	Cranbrook
170	VE4SRR	Swan River
171	VE5RJM	Canora
175	VE4FFR	Flin Flon
180	VE6MHU	Medicine Hat
181	VE6XZ	Calgary
184	VA6JAC	Edson
185	VE6COM	Lethbridge
186	VE6KJM	Airdrie
189	VE6AAH	Lethbridge
190	VE6LT	Red Deer
191	VE7RMR	Maple Ridge
200	VA3LU	Thunder Bay
201	VE9ARZ	Fredricton
202	VE3ULR	Toronto
203	VE1CRA	Charlottetown
204	VE2CRA	Ottawa
205	VE1NSG	Halifax
206	VE1WRC	Amherst
207	VE1KK	New Glasgow
208	VE1WN	Greenwood
209	VE3BIP	Belleville
210	VE3ADT	Toronto (Milton)
211	VE1WY	Lindsay
212	VA3RZS	Peterborough
213	VE3YYS	Ottawa
214	VE3XTX	Owen Sound
215	VE1BAS	Orleans
216	VE3IRL	Toronto
217	VA3BBB	Windsor
218	VA3EWC	Barrie
219	VE3OAK	Oakville
221	VE3TST	Stittsville
222	VE3KNA	Franktown
223	VA3CTR	Markham
224	VA3BJD	Oakville
225	VE9ACP	Fredricton
226	VE3OVQ	Guelph
227	VE3YYZ	Toronto (downtown)
228	VE3SEX	Almonte
229	VE3PNO	Toronto
230	VO1KEN	St. John
232	VO1BWP	Corner Brook
233	VE3KD	Sault Ste.Marie
234	VE2REA	Quebec City
235	VO1HHR	Grand Falls-Windsor
236	VO1AAA	New Harbour
237	VE1II	Truro
238	VE6RJO	Galgary
239	VO1MST	Marystown
240	VE3SUE	London
241	VE3RBM	Kitchener
242	VE3SY	Petersburg
243	VE3WFM	Waterloo
245	VE3RAK	Toronto
246	VE3MUS	Huntsville
247	VE3RPT	Toronto
248	VE3AAD	Parry Sound
249	VE3KR	Nobleton
250	VE3DPL	Norwich/Delhi
251	VE3HBJ	Toronto
252	VE3LKT	Pembroke
255	VE2BRR	Montreal
256	VE2TPE	Baie-Comeau
257	VE2RJS	Montreal
258	VA2RLP	Baie-Comeau
260	VE3PGC	Cornwall
261	VE3EI	Cornwall
262	VE3NUU	Monkland
265	VE3MME	Omemee
268	VE3RSB	Burlington
270	VE3ORX	Orangeville
271	VE3TIV	Kincardine
275	VE3KBR	Kingston
277	VE3RWN	Bethany
280	VA3SCR	Innisfil
281	VA3SCR	Innisfil
282	VE5NIR	Nipawin
283	VA3SCR	Innisfil
285	VE7ED	Sooke/Victoria
290	VA3RVU	Brampton
295	VA3UUU	Windsor
300	AH6LE	Mt Angel
301	WA6SUP	Sacramento
302	WA6LCN	Marinwood
303	KB6THO	Pasadena
304	WA6JFK	Los Angeles
305	KB5DBR	Ponca City
306	AC7DE	Helena
307	WA6TWF	Santiago Peak
308	WR6AVM	Honolulu
309	KB6JAG	Hemet
310	N6KNW	Santa Clarita
311	K6IOK	Auburn
312	KD6YYJ	San Jose
313	KC667BSA	Fruitland
314	KE6DGM	Norwlk
315	WA6RQD	Oceanside
316	WA6RQD	Oceanside

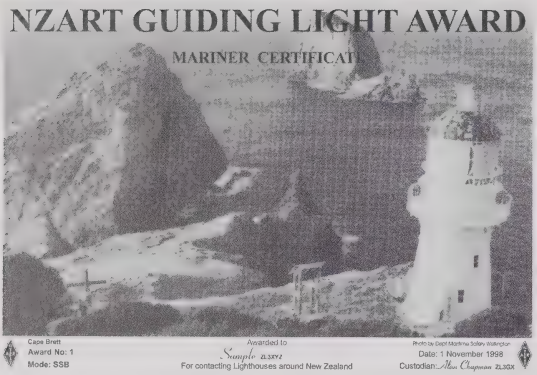
317 WD6AWP Huntingdon Beach
318 W0GFQ Palm Springs
319 WD8CIK Hollywood
320 AH6CP Honolulu
321 W7AOR Las Vegas
322 KH6GMP Kailua Kona
323 KB7LVC Boise
324 KB7RSI Las vegas
325 N7BFS Spokane
326 KH7R Henderson
327 K7SDC Castle Dale
328 KJ7YE Eden
329 W7AOR Las Vegas
330 N7CK San Manuel
331 KA7STK St. George
332 N7GZT Columbia
333 NV7RM Reno
334 WR6JPL Pasadena
335 N0PSR Denver
336 N9CZV Show Low
337 AB7TJ Minden
339 WB2BQW New Windsor
340 KB8JXX-2 Anchorage
341 KD6GDB Santa Monica
342 KD6LVP Portland
343 KE6WUK Sunset Ridge / LA
344 AH6GR Maui
345 N0SZ Boulder
346 WA6LA Palos Verdes 1
347 N6ICW Sacramento
348 WA6LA Palos Verdes 2
349 K6JSI San Diego
350 K6JSI San Diego - WIN
351 WB6EGR Santa Clarita
352 WB6EGR Burbank
353 K6JXY San Marcos
354 W6DXX Palm Springs
355 VE6RGP San Diego
356 WB6HII Eureka
357 N7HQZ Ferndale
359 N0BVE Minnetonka
361 K6UB Saratoga
362 KU6V Fremont
363 KG6EVO Tahoe City
364 WA6VPL Lompoc (WALA)
365 KE6PCV Los Angeles
366 KD7EFG Murray
367 N6JVH North Hills
368 N7LZM Kennewick
369 N6SEX Sacramento
371 WA4HND Grand Junction
372 KH6FV Honolulu
373 NH6HF Lihue
374 WB3EHB Camden
375 W0KU Golden
376 N6JVH Los Angeles
378 WR6HMB Half Moon Bay
379 WA6AXO Juneau
380 AH6JA Hilo
381 KG6EAO Kapaa
382 KC7GHT Phoenix
383 WB5EKU Los Angeles
384 K6IXA Atwater
385 W7FDF Tuscon
386 WA7SPY Sacramento
387 K6KCP Sacramento
388 K6RTL Sacramento
389 KG4OKL Huntsville
394 WA6WDC Sun Valley
395 WB6ARE Cedar park
396 N6SEX Sacramento
399 WY0X Centennial
400 WA3KOK Washington
402 KA2JZO Bordentown
403 N2LKV Stoney Point
404 N2CKH Lakewood
405 N2BJ New Lenox
406 W1IMD Portland
408 W2CNY Syracuse
409 KB2FAF Cortland
410 KF3DY Wellsboro
411 K0PCG Des Moines
412 KF6SWL Omaha
413 WA2ZPX Middletown
414 WJ2W Terre Haute
415 N5IUF Dallas/Ft. Worth
416 WB5TUF Houston
417 WB7RES Caldwell
418 N4MSE Dallas
419 N4XQM Atlanta
420 N4GLB Upstate
421 W2ISB Liverpool
422 WA2DCI Patchogue
423 NJ2FM Hopatcong
424 N5CWH Gilbert
425 WR2ROC Rochester
426 KD4RAA Raleigh
427 KD4RAA-2 Raleigh
428 W9ADS Champaign-Urbana
429 N4HAJ Kinston
430 N3APP Erie
431 N3RJC Lansdowne
432 W1QWT Scituate
433 K9WZ Plymouth
435 W9DXN Dixon
436 W1CDO Cle Elum
437 W8HDU Lima
438 W9BCC Wausau
439 KC7ZWG Seattle-Tacoma
440 KC8NCE Grand Haven
441 N9OIG Union Grove
442 W9SH Fishers
443 K9DRF Peoria
444 KB3HF St. Peters
445 N8DNX Stutsmanville
446 WB8NXP Southfield
448 K1IMD Eastern Long Island
450 N4NEQ Atlanta
451 KD4Z Orlando
453 K4KSA Tampa Bay
454 K0JPR Lees Summit
455 W4DOC Atlanta
456 NE1H Atlanta
457 WB2WPA Naples
458 W4VRB Vero Beach
459 N1HUI Branford
460 KD4BBM Miami
461 WA1NVC Framingham
463 N9EP Barrington
464 N5LEZ Electra
465 KA1UAG West Lebanon
466 W4RPT Nashville
467 N9UWE Danville
468 K1DF Albany
469 KF6JEE Woodcrest
470 N8OJ Marietta
471 WB8CXO Akron
472 W8JL Marietta
473 K9IP Indianapolis
474 N2MH West Orange
475 N8BC Painesville
476 N3IO Philadelphia
477 KA3KCJ Downingtown/ Mt. Joy
478 KA3VMA Drexel Hill
479 K3TAT Media
481 KF6FM Riverside
482 WA3UMY Lexington Park
483 N4IRS Stuart
484 N3IO Malvern
485 W9CEQ Aurora
486 KE4EUE Chesterfield
487 K1IMD Riverhead
488 KG4QAC Tampa
489 N2HYO Jordan
490 AF4TZ Nashville
491 WA3ADI Havertown
493 W1ET Hanover
494 N9TSW Des Plaines
495 W4VM Huntsville
496 N9GPY Culver
497 WA1ZVZ Merritt Island
498 WZ3L Allentown
501 KD7BCS Medford-Rouge Valley
503 N4PJR Jesup
510 G4CUI Sheffield
512 GB3EE Sheffield
513 GB3DV Maltby
514 G0FUO Mexborough
515 GB3US Sheffield
520 G4NJI Rotherham
521 G8UVE Burnley
522 G4EID Southport
523 G4EID Southport
524 GB3LI Liverpool
528 G6PHF Lancaster
535 G7PCT Melton Mowbray
540 G0XEL Manchester
550 MM1BHO Castle Douglas
551 MM0GEQ Edinburgh
560 GB3LV London
599 K7CWA Mesa
600 VK2RBM Sydney
601 VK2RMP Wollongong
603 VK2RMR Mt. Riverview
604 VK2RTZ Newcastle
605 VK2RCZ Sydney
606 VK2RAG Gosford
610 VK6RNC Perth
611 VK1RBM Canberra
620 VK6RFM Fremantle
621 VK2TTA Wahroonga
622 VK2RIC Lismore
626 VK2WAG Wagga Wagga
630 VK3RGL Melbourne
631 VK3HEG Ballarat
632 VK3WRM Merbein
633 VK3RPU Arthur's Seat
634 VK3DRB Mt. Waverley
635 VK3RMH Melbourne
639 VK3JED IRLP-Experimental
640 VK4BAB Ipswich
641 VK4FC Bundaberg
648 VK4RCA Cairnes
650 VK5UJ Adelaide
660 VK6AMS Karratha
661 VK6RAL Albany
662 VK6XAA Collie
670 VK7AX Ulverstone
671 VK7DY Tea Tree
672 VK7HTW Murdunna
680 VK8ZAB Darwin
690 ZL3TMB Christchurch
691 ZL2LD Wellington Region
692 ZL2WKI Palmerston North
700 J73D Roseau
702 K0BSJ Excelsios Springs
710 J73CS Roseau
712 9Z4CG San Fernando
714 N4JDW-2 Wilmington
718 KA1JJM Wilbraham
721 W9KXQ Greenville
722 W1AJI Derry
723 WB1GQR Essex on
725 N2HJD Rochester
726 VE3ECZ Spring Hill
727 KX1X South Hadley
728 N2CKH Lakewood
730 HC2ENM Guayaquil
731 N7QJB Cheyenne
732 N4NEQ Blue Ridge
733 N6RDE Cameron Park
734 WB3LGG Cochranville
735 W7AIA Vancouver
736 KL3K Seward
737 KJ6VU San Jose
740 N6NMZ Applegate
741 KD4RAA-3 Raleigh
743 W7CMA Lakeside
744 WD9BBE Algonquin
745 KB0WLF Salem
746 N7TWB Phoenix
747 K6YOU Modesto
748 N4JDW-2 Wilmington
749 WA4UCE Cookville
750 9Y4AT Valsayn
751 W7TRO Lewiston
752 AF4ZJ Chattanooga
753 W9ICE Indianapolis
755 K9JAC Hubertus
756 KC4IBT Vero Beach
757 K0BXX Phoenix
758 WA2UMD Farmingville
759 WA2OTP Toms River
760 9Y4SRR San Fernando
761 N7XEI Port Angeles
762 W7ARA Phoenix
764 KC5BMJ Kingsland
765 N6ICW Sacramento
766 WD4JRB Montgomery
767 W6CYX San Jose
768 KA3PST Gettysburg
769 WB3BSA Resica Falls
770 W9PCI Central Point
771 W4JAZ Cocoa
772 WA2KJC Keuka Park
773 W3KHL Lebanon
774 WE4B Ft. Lauderdale
775 K5JS Phoenix
776 AI7J Ogden
777 8P6HE Bridgetown
779 WA7VEF Nampa
782 WB2HWW Queens
783 WB2NBU Palm Beach Gardens
784 KB6LJO Palos verdes 3
785 KC0MDI Rolla
787 KA6UAI Palomar Mtn
788 AC4RZ Easley
789 AE4GB New Port Richey
791 KH2BI Pasadena
793 N8HEE Charlotte
794 KB8JXX-1 Anchorage
795 WB4IVB Corbin
796 KL3K Anchorage
797 WA6TMJ Hanover Park
800 SK6RAB Oxaback
801 SM4VBO Falun
820 7J11YAB Tokyo
830 ZS5HAM Durban
840 ZS6ERB Johannesburg
860 PI2EHV Eindhoven
888 KC4USV McMurdo Station
900 REF 900 Vancouver
910 REF 1 Toronto
920 REF 2 Denver
921 REF 921 Raleigh
925 REF 925 Las Vegas
930 REF 930 Saskatoon
931 REF 931 Fredricton
940 REF 4 Yellowknife
950 REF 5 Sydney
960 REF 960 Philadelphia
970 REF 970 Lancaster

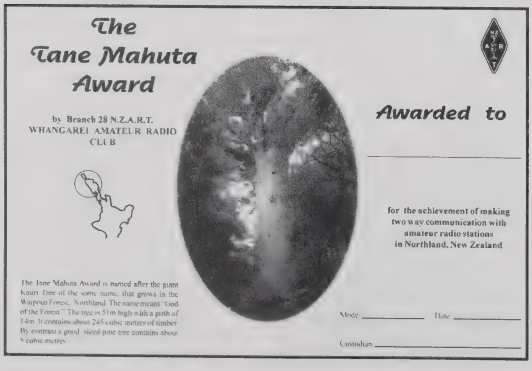
Node ID + 0 = on code Node ID + 1 = off code Close Connection = 73 Time Now = 76

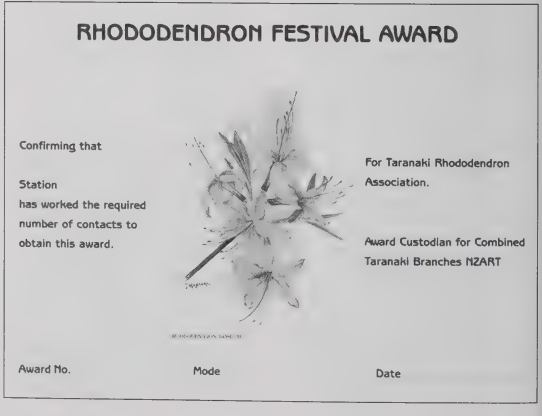
Some Awards available from NZART or from Branches


Far North Districts Amateur Radio Club (Inc.)
Branch 78 N.Z.A.R.T.
Presents the ZL1FND Inaugural
Far North Avocado Festival Award
March 8th to 14th 1999
Awarded to:
Sample
Certificate No:
Award Manager
Avocado
From Tropical South America, belonging to the family Lauraceae, the Avocado tree is classified as Persea Americana. It is often mistakenly called a pear due to its being a drupe (pear shaped). The flesh of a ripe Avocado is generally greenish depending on the variety and has a smooth, spreadable consistency. Mostly known in New Zealand for making Guacamole Dip it is a very good salad vegetable. It has a high (approx 10-20%) unsaturated fat content. Cultivated mainly in California it is now cultivated on the Aupouri Peninsula in the Far North of New Zealand and has become a valuable export crop.






The Tane Mahuta Award
by Branch 28 N.Z.A.R.T.
WHANGAREI AMATEUR RADIO CLUB
Awarded to
for the achievement of making two way communication with amateur radio stations in Northland, New Zealand
The Tane Mahuta Award is named after the giant kauri Tree of the same name, that grows in the Waipoua Forest, Northland. The name means "God of the Forest." The tree is 51m high with a girth of 14m. It contains about 245 cubic metres of timber. By contrast a good sized pine tree contains about ½ cubic metres.
Mode
Date
Custodian



by ALLAN CHAPMAN ZL3GX

Award Notes

When applying for an award, whether through NZART or through an overseas Society, courtesy demands that you observe the following: (1) PRINT your name, address and call-sign; (2) Clearly state what award (and endorsements) you are applying for; (3) Supply checking sheet with call-signs, dates of QSOs, mode, etc.; (4) Enclose required funds (currency/IRC/stamps) as requested.

For NZART Awards

1. The usually accepted rules apply to all NZART awards.
2. NZART stresses the HONOUR SYSTEM. Awards applicants need NOT hold QSL cards for claimed contacts. It is sufficient to merely certify that the QSO was legitimately made. This no QSL rule applies ONLY to NZART sponsored awards.
3. Endorsements for mode/time/location etc., made at applicant's request.
4. New Zealand, US or Australian currency accepted instead of IRC but cheques NOT desirable. New Zealand stamps OK $1, $2 or $3 preferred.
5. Post applications to NZART Awards Manager, PO BOX 1733, Christchurch 8015, New Zealand.

APPLICATION FORMS suitable for most awards are available from NZART Awards Manager (SASE Please) or on the web at www.nzart.org.nz/nzart/awards/awards.html.

COST OF AWARDS. NB—Cost given for awards are those for ZL applicants. Overseas applicants pay US$5.00 for each NZART award EXCEPT WAP (US$6.00) or one IRC per $1.00.

For Branch Awards

Logs need not be verified unless stated.

All awards are open to shortwave listeners unless stated.

The honour system also applies to Branch awards.

NZART AWARDS

CJC

Captain James Cook Award

To perpetuate the memory of this world famous navigator and seaman—in three classes: Basic "Sailor Class" requires contacts with—G in Yorkshire; FO; ZL2; VK2; KH6 ... For "Officers Class"—"Sailor Class" contacts as well as ZL1, ZL3, ZL4, VK3, VK4, New Guinea, and any Antarctic station ... For "Command Class", as for "Officer Class" as well as any five of the following—VE2, VO, A35, YJ8, FK8, CE8, KL7.

Certified list (confirmations not required) with $3.00, overseas US$5.00, to NZART Awards Manager.

ENZART

A prestige award to honour NZART

1. In three parts—(A) Basic award requires 200 points with endorsements for 250, 300, 350 points. (B) Honour award requires 400 points with endorsements for each additional 50 points. (C) HONOUR PLAQUE for 500 points.

2. Points earned as follows by contacting an NZART member who is on the voting roll of the Branch concerned—Phone QSO, 1; CW QSO, 2; Club Station QSO, 2; YL op. QSO, 1; UHF, VHF QSO, 1; Mobile QSO, 1; AMSAT QSO, 1; Branch President QSO, 1.

3. It is essential to clearly determine that the operator contacted is a financial member of NZART and on the voting roll of the Branch concerned.

4. Contacts claimed with a Branch Station must be from a Clubroom or other permanent headquarters, or alternatively when the station is being operated in a contest, from an exhibition, or other activity of a similar kind. Contacts as a result of call-sign "swapping" at a member's QTH are not eligible.

5. Contacts with mobiles are eligible only when the mobile station is within 50 km of his Branch's Clubrooms or his own QTH. (Note rule 3 above.)

6. One station may be claimed in several categories—e.g. the Branch President can be claimed for both Phone and for CW as well as for Branch President—but EACH claimed must be for a separate contact, and the contacts must be not less than 24 hours apart.

7. Contacts must be "Phone to Phone" or "CW to CW".

8. "Club Net" contacts are not eligible until the net concludes, while contacts made in an organized "awards net" with MC etc., are not eligible.

9. Permanent changes of QTH by claimant are permitted and likewise contacts made during genuine temporary operation.

10. ZL applicants must be members of NZART and all applicants must certify that each contact made fulfils award requirements. No QSL card need be held or submitted but applications must be made on special Check List—cost 10 cents plus SASE (large). Contacts must date November 1 1976 or later.

11. Each certificate costs $3.00, overseas US$5.00. Endorsements free but SASE required. Overseas US$2.00 Honour Plaque NZ$10.00, overseas US$12.00.

12. Applications to NZART Awards Manager.

IARU Region III Operating Awards

To publicise Region III

1. The award is available to licensed amateurs and SWLs.

2. Contacts made after April 5 1982 are eligible.

3. QSL cards NOT required. Send certified list of eligible contacts from Log Book. Include country in log.

4. Cost is $3.00, overseas US$4.00.

5. Eligible countries are those in Region III whose amateur societies are members of IARU Region III Association. These are: Australia, Bangladesh, Brunei, China (PRC), Chinese Taipei (Taiwan), Fiji, French Polynesia, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Caledonia, New Zealand, Pakistan, Papua New Guinea, Philippines, Pitcairn Island (VR6), Singapore, Solomon Islands, Sri Lanka, Taiwan, Thailand, Tonga, Vanuatu.

PLUS: ONE Country credit from US Territories in the Pacific from Guam, Northern Marianas, American Samoa, Wake Island, Baker Howland Group, as presented by ARRL. Chagos Archipelago (VQ9), represented by RSGB. Current total of available "countries" is 31. Requirements for Award as from January 1 1986: Basic, seven areas; Silver Endorsement, 15 areas; Gold Endorsement, 20 areas. These to be reviewed as considered necessary by the custodian who would recommend appropriately to the Secretariat.

6. Awards may be endorsed for any mode or band.

7. Applications to NZART Awards Manager.

NZART Guiding Light Award

This award requires contacts with stations within 30 km of the more remote lighthouses and 10 km of the lighthouses near cities. Depending on the degree of difficulty each lighthouse has been allocated one to five points. A total of 20 points are required for the basic "Mariners" Award and 50 points for the "Master Mariners" Award.

The lighthouses

North Island	Points	km
Cape Reinga	2	30
Cape Brett	1	30
Mokohinau	5	30
Cuvier Island	3	30
Tiritiri Matangi	1	10
Bean Rock	1	10
East Cape	2	30
Portland Island	2	30
Castlepoint	2	30
Cape Palliser	2	30
Baring Head	1	10
Pencarrow	1	10

	Points	km
Somes Island	1	10
Cape Egmont	1	30
South Island		
Cape Foulwind	1	30
Kahurangi Point	3	30
Farewell Spit	2	30
Boulder Bank	1	10
Stephens Island	5	30
The Brothers	2	30
Cape Campbell	1	30
Godley Head	1	10
Akaroa	1	30
Moeraki	1	30
Taiaroa Heads	1	10
Cape Saunders	1	10
Nugget Point	2	30
Waipapa Point	2	30
Dog Island	1	30
Centre Island	1	30
Puysegur Point	5	30

Full log sheets available from Awards Manager. Eligible contacts for this award must be dated November 1 1998 or later. Cost of both awards $5.00, overseas US$5.00 or five IRC. Applications to NZART Awards Manager.

MIA

Minor Islands Award

For contacts with minor islands of the New Zealand coast—e.g. Kapiti Island, Portland Island, Great Barrier Island, Little Barrier Island, Waiheke Island, D'Urville Island, Rangitoto Island, Kawau Island, Motutapu Island, etc., from which FIVE contacts are required. Certified list with $3.00, overseas US$5.00, to NZART Awards Manager.

1. So-called "islands" which are connected to the mainland by a causeway and rocks are not eligible.

2. The station must be located on the island or within the waters up to one nautical mile offshore, unless prevented by hazardous conditions.

3. Where public access is available, M/M stations must be on a mooring, ie, wharf, jetty, buoy, or anchor, or on arrival or departure from a mooring.

National Parks Award

1. For contacts made with stations operating WITHIN boundaries of a New Zealand National Park.

2. Basic award requires TWO contacts.

3. Usual NZART awards rules apply.

4. Endorsement: for each extra two contacts; for VHF Simplex; for VHF via repeater; for each amateur band; etc.

5. Duplicate Contacts (with SAME station) permitted ...

★ on different amateur bands
★ on different days
★ from different Parks.

6. Eligible contacts to date from January 1, 1988.

7. Applications with $3.00, overseas US$5.00, to NZART Awards Manager.

NZ Armed Services Award

This award is presented by the Counties Awards Net to remember all amateur radio operators who have served their country.

This award is open to all amateurs and SWLs.

All contacts made after August 1, 1992 will be eligible for this award.

All Amateur bands and modes may be used.

Repeater contacts accepted.

A station may only be contacted once.

Only one service number may be used.

ZL stations to work 100 contacts. VK stations to work 50 contacts. DX stations to work 30 contacts.

Information required: Log data, Service Number, Service in which served (ie, (A) Army, (AF) Air Force, (N) Navy.

Cost of Award: $3.00, overseas US$5.00.

Custodian: NZART Awards Manager.

Check sheet and rules also available from Awards Manager with SASE.

Provision for Award Update if required.

NZA—New Zealand Award

Available to all radio amateurs other than ZL.

Requirements:

35 contacts with ZL1.

plus 35 contacts with ZL2.

plus 20 contacts with ZL3.

plus 10 contacts with ZL4

plus one contact with ZL "territory"—either from NZ Antarctica, Chatham Islands, Kermadec Islands, or Campbell Island. This one contact may be substituted by 20 ordinary ZL contacts if desired.

This makes a minimum of 101 contacts which should be dated from December 8, 1945. Cost $3.00, overseas US$5.00.

NZC—New Zealand Counties

Basic award required contacts with 20 different New Zealand Counties. Endorsements for 40, 60, 80, 100 are made with a special certificate for 112. Map showing counties is depicted elsewhere in this section, while checking sheet is available from NZART Awards Manager.

1. Initial certificate with any or all endorsements to 100 costs $3.00, overseas US$5.00.

2. Separate endorsements to 100, after issue of basic award, costs 20 cents for any group—or one IRC. Plus SASE.

3. Special Certificate for "NZC 112" costs $3.00, overseas US$5.00.

4. Checking sheets which MUST be used and which are returned to applicant for record purposes cost SASE, overseas US$2.00.

5. NZC "224"—the "224" Shield was instituted to recognize very outstanding achievement—that of "double 112" with different stations contacted in the relevant counties for each NZC 112. Current cost is $15.00, overseas US$25.00 (surface mail only). Applicants for NZC 224 must first hold TWO NZC 112 Awards. Send BOTH log sheets when applying for 224.

6. The operator on a "County DXpedition" whether Mobile or Fixed Portable may claim that County for his own NZC credit.

7. The original "Counties List" will be maintained irrespective of deletions or additions. The criteria will be the actual area of operation which must be determined by the honour of the operator.

NZLA—New Zealand Lakeside Award

1. For Basic Award, contacts are required with stations operating on the shores of TEN (10) freshwater lakes in New Zealand. Endorsements for each additional ten lakes up to 40; Honour Award for 50 lakes with further endorsement for each additional ten.

2. Stations must be located within ONE kilometre of the water or in a town on the lake shore.

3. Full rules are with the Check Sheets which MUST be used when applying for NZLA—these cost a 40 cent stamp plus SASE.

4. Basic Award costs $3.00, overseas US$5.00. Any endorsements SASE, overseas US$2.00.

5. Check Sheets from NZART Awards Manager to whom all applications must be directed.

6. Eligible contacts must date May 1, 1976 or later.

NOTE: Check Sheets are returned to applicant and make up a complete record of lakes credited towards award. Basic work for this award was done for NZART by Mike Groth ZL1AHF.

NZART Century Award

Basic requirements

This award is based on the Maidenhead Locator System. The award is open to all amateurs and SWLs. One hundred different sub-squares are required for the Century Award.

Addict certificate for 500 sub-squares.

Grand certificate for 1000 sub-squares.

Each contact must state the fill six digits of the Locator position, eg, RF66HK.

Eligible contacts must date January 1 2000 or later.

Any operator on a "Century Award DXpedition" whether mobile or portable may claim the sub-square for their own credit.

Note

All contacts must be from the New Zealand mainland or surrounding islands.

Log sheets and maps, which give a broad outline of the Squares are available. The map supplied does not give an accurate position of the squares. Info maps that have latitude and longitude must be used for the position of the Sub-squares. For example, InfoMap series 242-1, 242-2, 242-3, 242-4, or similar.

A DOS-based program that will return the square for a given latitude and longitude is available via e-mail or send a 3.5" floppy with return postage to the NZART Awards Manager.

Cost

Century and Addict and Grand Certificates NZ, A, US$5.00 each.

NZR Regions Award

This award is similar to the NZ Counties Award but relates to the current Regional Districts.

Basic requirements

Initial certificates with four Regions and 18 Districts.

Stickers for 8/36 and 12/54 Regions and Districts.

Special award for all Regions and Districts.

Contacts must date January 1 2000 or later.

Cost

Basic award NZ$5.00. Endorsements SASE plus a 40 cent stamp.

Overseas US or A$5.00 or five IRCs. Endorsements $2.00 or two IRCs.

All Regions and Districts Award NZ$5.00, US$5.00 or A$5.00.

Double Region Award $15.00, overseas $25.00 (surface only).

Boundaries

The boundaries are as per InfoMaps 242B-1 to 242B-4 (four maps) and will remain to give a basis of stability.

Applications for the award must be on the log sheets which are available from the NZART Awards Manager. Send SASE or via e-mail (PDF file).

The following is a list of Districts (bold Italic type) and the regions.

North Island Regions

Northland
- Far North
- Whangarei
- Kaipara

Auckland
- Rodney
- North Shore
- Waitakere
- Auckland
- Manukau
- Papakura
- Franklin*

Waikato
- Thames-Coromandel
- Hauraki
- Waikato
- Matamata Piako
- Hamilton
- Waipa
- Otorohanga
- South Waikato
- Waitomo*
- Taupo*

Bay of Plenty
- Western Bay of Plenty
- Tauranga
- Rotorua*
- Kawerau
- Whakatane
- Opotiki

Gisborne
- Gisborne

Hawkes Bay
- Wairoa
- Hastings
- Napier
- Central Hawkes Bay

Taranaki
- New Plymouth
- Stratford
- South Taranaki

Wanganui-Manawatu
- Ruapehu
- Wanganui
- Rangitikei*
- Manawatu
- Palmerston North
- Horowhenua
- Tararua

Wellington
- Masterton
- Carterton
- South Wairarapa
- Kapiti Coast
- Porirua
- Upper Hutt
- Lower Hutt
- Wellington

South Island Regions

Nelson
- Nelson

Marlborough
- Marlborough

Tasman
- Tasman

West Coast
- Buller
- Grey
- Westland

Canterbury
- Kaikoura
- Hurunui
- Selwyn
- Waimakariri
- Christchurch
- Banks Peninsula
- Ashburton
- Mackenzie
- Timaru
- Waimate

Otago
- Waitaki*
- Queenstown-Lakes
- Central Otago
- Dunedin
- Clutha

Southland
- Gore
- Southland
- Invercargill

*Districts cross Regions boundaries.

Tiki Award

Work five different ZLs each on FIVE different bands dated post-war. Cost $3.00, overseas US$5.00.

ZL1 Award

Basic Award requires contacts with 125 different ZL1 stations dating post-war. Endorsements 175 and 250.

ZL2 Award

Basic Award requires contacts with 100 different ZL2 stations dating post-war. Endorsements for 150 and 200.

ZL3 Award

Basic Award requires contacts with 50 different ZL3 stations dating post-war. Endorsements for 75 and 100.

ZL4 Award

Basic Award requires contact with 25 different ZL4 stations dating post-war. Endorsements for 35 and 50.

Note: cost of ZL1/2/3/4 Certificates is $3.00, overseas US$5.00, each with any endorsements. Further endorsements will cost 40 cent stamp plus SASE, overseas US$2.00, UNLESS a new certificate is required instead of "sticker", in which case the cost is as above. On issue, certificates will be endorsed for band/mode as requested and for any yearly period of time (January through December). Such endorsements are of course available to applicants at any time after the initial award has been made. ZL or ZM combination is OK. Applications with list to NZART Awards Manager.

VHFCC—VHF Century Club

One hundred points required from QSOs with ZL stations on the following basis:

50 MHz band contacts count one point.

144 MHz band contacts count three points.

432 MHz band contacts count six points.

(Further bands may be added in the future).

The same station may be claimed once on any one band but may be claimed repeatedly on different bands.

Endorsement stickers available for 200, 300, 400, 500 points. Cost $3.00, overseas US$5.00.

WAD—A VHF Award

Contacts required on any VHF band (or mixture of VHF bands) with ZL1, ZL2, ZL3, ZL4—One contact per Call Area. Cost—$3.00, overseas US$5.00. Endorsements for Satellite QSOs.

WAP—"Worked All Pacific"

Contacts required with 30 different "Oceania Countries".

Eligible countries ... Any Oceania country, i.e. eligible as Oceania for WAC (see DXCC list). Cost $3.00, overseas $6.00. Please include country on log sheet.

Five Band WAP

Contact any 30 eligible Pacific Countries (as counting for Oceania for WAC), each on FIVE different bands making a total of 150.

Send list of log extracts (QSLs not required to be held) to Awards Manager ... with $15.00, overseas US$25.00 surface mail only.

AWARD: Wooden Shield surmounted with NZART badge and suitably inscribed.

WAZL—"Worked All New Zealand"

Contacts required for 45 different Branches of NZART—EXCEPT FOR OVERSEAS APPLICANTS (for whom only 35 are required). Special endorsement when WAZL completed within 12 month period. NB: Mobiles operating outside their own Branch Area must use the Branch Number of the area in which they are operating (for WAZL credit). Cost $3.00, overseas US$5.00 to NZART Awards Manager.

NZART Branches for WAZL

01 Ashburton
02 Auckland
03 Western Suburbs
04 Cambridge
05 Christchurch
06 Tararua
07 Not issues
08 Eastern Southland
09 Egmont (in recess)
10 Franklin
11 Gisborne
12 Hamilton
13 Hastings/Havelock
14 Hawera
15 Central Hawkes Bay
16 Horowhenua
17 Huntly
18 Hutt Valley
19 Inglewood
20 Manawatu
21 Manukau
22 Marlborough
23 Marton and Districts
24 Motueka
25 Napier
26 Nelson
27 New Plymouth
28 Whangarei
29 North Shore
30 Otago
31 Pahiatua (in recess)
32 Rahotu Coastal
33 Rotorua
34 South Canterbury
35 Balclutha
36 South Westland
37 Southland
38 Taumarunui
39 Tauranga
40 Te Awamutu
41 Thames
42 Titahi Bay
43 Waihi and Districts
44 Matamata
45 Waimarino
46 Wairarapa
47 Waitara
48 Wanganui
49 Westland
50 Wellington
51 Eastern Bay of Plenty
52 Northern Hawkes Bay
53 Te Puke
54 Patea
55 Waitomo
56 Christchurch West
57 Tokoroa
58 Helensville (in recess)
59 Mangakino (in recess)
60 Taupo

61 Central Otago
62 Reefton-Buller
63 Upper Hutt
64 North Otago
65 Papakura
66 Auckland VHF
67 Kawerau
68 North Canterbury
69 Kapiti
70 Feilding
71 Rodney
72 Opotiki
73 Northern Wairoa
74 Wellington VHF
75 Queenstown
76 Kaikoura
77 Te Aroha
78 Far North Districts
79 Howick and Districts
80 Hibiscus Coast
81 Waikato
82 Southern Wairarapa
83 Raglan
84 Bay of Islands
85 Mercury Bay

Yearly Award

This award is an annual award starting on January 1 and ending on December 31 each year.

The rules are as follows:

1. A total of 80 contacts required.

2. The numbers of years licensed must be obtained from station worked.

3. The licensed years are totalled to 1000 or more years.

4. Log details must include the operator's call-sign, name, licensed years and date worked.

5. The award is open to all SWLs who must include in addition to the above, both operators names and call-signs.

6. Logs must include at least 20 ZL contacts.

7. Send $3.00, overseas US$5.00, to the NZART Awards Manager.

"5 × 5"—Five by Five

This premier award has been instituted to recognize the increasing interest in Five Band DX operation. The initial award requires that the same station be contacted on five bands repeated with five different DXCC countries. First endorsement after a further five has been contacted (total of 10) with the 20 endorsement requiring another ten and so on to 100. Certified list with full QSO data and fee of $3.00, overseas US$5.00, which includes all endorsements. Certificate is outstanding and is overprinted in embossed gold. Contacts must date from 1945.

ZLA Award

Contacts required with Auckland City, Wellington City, Christchurch City, Dunedin City, Antarctica ZL5, Campbell Island, Chatham Island, Kermadec Island. Applicants must send certified list to NZART Awards Manager with $3.00, overseas US$5.00. Specially produced certificate.

NZART Branch Awards

Aotearoa Postcode Award

This award has been presented to stimulate awareness and the use of postcodes in the New Zealand postal system—at least by the amateur fraternity. To some extent it is a sister award to the Australian Amateur Radio Postcode Club. At the present time there are 613 postcodes in use, so the upgrades will not come easy. Best of luck.

1. The award is open to all Amateurs and SWLs.

2. All contacts made on or after October 20, 1991, will be eligible for the award.

3. A certificate will be issued for basic qualification, and stickers for the various following upgrades.

4. Portable and mobile stations must give the postcode for the particular area they are in and can claim that postcode for the award.

5. Basic Award: Make contact with ZL stations and obtain their QTH and Postcode. Then use the suffix letters of the station claimed to complete the following phrase—AOTEAROA LAND OF THE LONG WHITE CLOUD.

Each letter of a call-sign may only be used once unless that station is contacted in a different postcode area. Claim each postcode once only.

6. Upgrades: Stickers will be issued as follows: Postie—100 different postcodes; Mail Officer—150 different postcodes; Supervisor—200 different postcodes; Branch Manager—250 different postcodes. (There is provision for an extension for the enthusiast.)

7. All amateur modes and bands may be used. Repeater contacts accepted.

8. Cost: Basic certificate—

ZL stations	$3.00
VK stations	US$2.00
DX stations	US$3.00

Upgrades—

ZL stations SASE plus $1.00 for first—SASE for other three.

VK Stations SASE plus $1.00 stamp for each upgrade.

DX stations SAE plus US$1.00 for each upgrade.

9. A copy of your log is to be submitted upon application for the awards and sent to: Awards Manager, 48 Leslie Street, Waitara 4656.

Bay of Plenty Awards

Sponsored by the Tauranga Branch 39 of NZART. For working stations in the Bay of Plenty region—viz, Opotiki, Rotorua, Taupo, Tauranga and Whakatane Districts and all cities and districts within this region.

ZLs need: either 10 stations on any band or five stations on VHF bands.

The Rest of the World need: five stations on any band.

This award is available to listening stations on a "heard" basis.

Note:

ZL1BNW is an instant qualifier. Costs: $4.00.

Applications with check list, showing station, date worked, mode and band (QSLs not required) to John V. Collin ZL1BNW, 65 Paine Street, Judea, Tauranga 3001, New Zealand.

Christchurch Award

Requirements:

Christchurch amateurs 25 different stations; rest of ZL—15 stations; VK—10 stations; rest of world—five stations. Cost: ZL and VK NZ$5.00; others US$4.00 or equivalent. Applications to Christchurch Branch Awards Manager, Box 1733, Christchurch.

Christchurch Amateur Radio Club Branch 05 Brasspounders' Club Award

The aim of this award is to promote Morse technique in a friendly competitive way and to encourage conversational CW between fellow amateur radio enthusiasts.

A Certificate of Accomplishment will be issued by the Christchurch Branch Awards Manager when suitable evidence shows that the applicant has gained the appropriate points total.

For the "INITIAL AWARD" (25 points minimum) the following QSO types are acceptable.

1. CW QSO with Christchurch Amateur Radio Club Branch 05 Club member—one point.

2. CW QSO with Christchurch Amateur Radio Club Branch 05 "Brasspounders" Club member—two points

3. CW QSO with Christchurch Amateur Radio Club Branch 05 "Brasspounders" Club member via ZL3AC Club Station—four points

Bonus points may be added to each of the above according to the following criteria:

4. If the QSO was conducted throughout using a STRAIGHT key, claim two bonus points.

5. If the QSO was conducted throughout using an a ELECTRONIC keyer or SEMI-AUTOMATIC key (bug type) claim one bonus point.

A QSO conducted with COMPUTER Morse will not be eligible for a bonus.

Type "3" QSOs if multiple, must be spaced at least 24 hours.

Award Par Excellente

60 points minimum

For "AWARD PAR EXCELLENTE", New Zealand "Home Stations" must include at least two type "1" QSOs, and there is no points limit on type "5" contacts. Where the same station is being claimed more than once, there must be at least 24 hours separation between the QSOs.

Overseas stations need only one type "1" QSO for their "Award Par Excellente" included with their claim, and may claim two points for each "ZL" QSO together with one extra bonus point if the "ZL" is a "Branch 05 member". At least 24 hours must separate QSOs where the same station is being claimed more than once.

Rules

Frequencies: All Amateur Band CW frequencies may be used.

Who: All Radio Amateurs.

Claims: Log extracts showing date, time on/time off, signal reports, other operator's call and QTH.

Check: Log extracts shall be countersigned by one other similarly licenced amateur operator.

Duration: Contacts claimed shall have been of at least one-quarter hour (15 minute) duration.

Signals: No claims will be accepted with reports of T7 or lower.

When: Only QSOs commenced after the inauguration are acceptable. Inauguration date is February 1, 1993. There is no closing date for claims unless the award termination is promulgated.

Points: Points claimed for "INITIAL AWARD" may not be used for the "AWARD PAR EXCELLENTE".

Costs: NZ$12.00 Initial Award.

The Club Station ZL3AC will be on the air from 0800 UTC on an occasional basis. The operating frequencies are from 3.5 MHz to 3.575 MHz and on other HF bands depending on conditions.

Address all claims to Christchurch Amateur Radio Club Awards Manager, PO Box 1733, Christchurch, New Zealand.

City of Dunedin Award

Otago Branch 30 promotes this award which features colour photographs of Albatrosses in the colony on the Otago Peninsula, the lighthouse at Tairoa Heads, and a view of Dunedin City from Stuart Street.

Contacts since July 1 1986 eligible and the required 10 points for ZL applications (five point DX) may be accumulated from the following allocations:

ZL4AA Branch station	3 points
Branch 30 President	2 points
Branch Life Member	2 points
Branch YL	2 points
Other Branch members	1 point

Award is open to SWLs.

NO repeater contacts and each station can be worked ONCE only. Any one band/mode or a combination of any bands/modes may be used.

Cost—NZ$2.50 with application to Awards Manager, PO Box 5485, Dunedin 9015.

Fiordland National Park Award

Requirements: Contact four separate stations/operators in or within one kilometre of the Fiordland National Park, plus two contacts with Branch 08 members. Total—six contacts. Send log (no certifying required) with $1.50 (stamps OK) to George McKenzie ZL4JP, Waiparu, No. 7 RD, Gore 9700.

Gisborne Award

Requirements: Contacts after January 1 1969, as follows: Gisborne amateurs—ten different stations. ZL—four stations. Rest of world—two stations.

Cost: $5.00. Apply to Awards Manager, PO Box 1017, Gisborne 3815.

Kapiti Branch Award

1. Ten points required on any band—including VHF-UHF and repeater contacts. Different stations are required.

2. One point for any NZART member residing permanently in the district.

3. Two points for any branch member.

4. Three points for any committee member.

5. Four points for ZL2KB.

6. Net contacts are permitted, except the Branch net.

7. A listeners' award is available. Recording of sufficient two-way contacts worth 10 points.

8. Packet contacts attract two points each for Kapiti Branch member worked direct.

9. Double points for CW contacts, excluding Field Days.

10. No two contacts with the same station are permitted.

11. Price $5.00 per certificate.

12. Enquiries to Award Manager, Haydn Sherley ZL2AWI, PO Box 166, Paraparaumu 6450, New Zealand.

Manawatu Award

For overseas stations working FIVE stations who are members of Manawatu Branch 20. Certified list and US$5.00 or five IRCs to ZL2AFT, 429 Albert Street, Palmerston North 5301.

Manawatu Amateur Radio Society Windmill Award

There are 48 windmills overlooking the city generating electricity for the national grid.

Forty-eight points required being the number of windmills overlooking the city. Contacts to be made on any band and any mode made up of the following points.

Club Station ZL2KO (compulsory contact) 10 points.

Club President five points.

Vice-President four points.

Committee member three points.

Any other Branch member two points.

Stations may only be contacted once and must be financial members of Branch 20 at time of contact. All contacts to be made after September 1, 2000.

Overseas stations only need to contact five branch members and the club station is not a compulsory contact for them but optional.

The award is open to all amateurs and SWLers. The cost of the award is $5.00 in New Zealand. Overseas US$5.00.

Please note that this is a separate award to the branch DX award although it is open to DXers.

Award Custodian

Manawatu Amateur Radio Society
PO Box 1718
Palmerston North 5315

Papakura Radio Club "21" Award

For contacts with 20 members of Papakura Radio Club PLUS ZL1VK dating from January 1 1977. Band/Mode endorsements; certificates not numbered; certified list and $2.00 to Miss C. Johnson ZL1AJL, PO Box 397, Papakura.

Railways Award

This Award is sponsored by Southern Wairarapa Branch 82.

To work amateurs within one kilometre of railways stations which are the stopping places for the "Northerner", the "Southerner", and Picton-Christchurch Express (Auckland to Invercargill). Full rules on the check sheet.

Check sheet which contains full rules is available. Send SASE to Awards Custodian, ZL2GJ, Call Book address. Cost of the Award is $3.00.

Reefton-Buller Award

Basic Award requires contact with any five Branch 62 members.

Merit Award requires, in addition to Basic, that ZLs contact one Branch 62 XYL or YL and the Club station ZL3BRC. Overseas stations contact any one of those mentioned above. Two categories HF and VHF.

NO QSLs required. Send certified list with $5.00 to NZART Awards' Manager. List of members etc available from Branch 62 Secretary.

The Rhododendron Festival Award

The award is to beld by the combined clubs of Taranaki branches on or about November each year to coincide with "The Rhododendron Festival". The award certificate will be one of a series of coloured, hand-painted prints of named Rhododendron varieties by the well-known Taranaki artist, Janet Marshall.

Rules

1. The Award will run for two weeks about the beginning of November each year. It is available to all Amateurs and Shortwave Listeners.

2. Contacts may be made on any band, any mode. Each station may be worked *once only* for each separate application for the Award.

3. *New Zealand stations* require 25 points from those listed below:

Compulsory contact with Special Event Station ZL6RFA—five points
Contact with Taranaki Branch stations—three points
New Plymouth Branch 27—ZL2AB
Hawera Branch 14—ZL2AWW
Rahotu Coastal Branch 32—ZL2ANN
Waitara Branch 47—ZL2TO
Patea Branch 54—ZL2QF
Each additional Taranaki station (ie, a station whose usual base station is in Taranaki)—one point

4. *Overseas stations* require only six points, calculated as above, and *do not have to make a compulsory contact.*

5. Copy of log, with a note of your Award choice and fee, to arrive before January 31, to:

The Award Custodian
NZART Branch 27
C/- 45 Robe Street
New Plymouth 4601
New Zealand

6. Fees, including return postage:

For ZL award applications $6.00 each

For all overseas award applications, US$5.00 or fair equivalent.

Main operating frequencies Rhodo Net—3.593 MHz, NZ Awards Net—3.677 MHz, and any amateur frequencies.

Rotorua Amateur Radio Club Inc.

Maidenhead Locator Award Rules

1. The name of this award is the Maidenhead RF81 Rotorua Award—in short, The RF81 Award.

2. The Award is the responsibility of Branch 33, Rotorua, NZART.

3. The Award is for contacts into 98 Sub-squares and two contacts with the Club Station ZL1ROT.

4. A certificate will be issued upon completion of contacts into five Sub-squares plus one contact with the Club Station ZL1ROT.

5. Four Endorsements will be issued as the number of Sub-squares contacted reach 25, 50, 75, and 98. They will be known as the Geyser, Redwood, Lakeland, and Mountain Endorsements respectively. The final Endorsement requires a further contact with Club Station ZL1ROT, making a total of 100 contacts for the full award.

6. Contacts may be made on any Amateur band by any mode.

7. Operators working from a Sub-Square may claim that Sub-Square for their own Award.

8. Operators may be contacted before or after the Club Net (see *Call Book*) on 147.350 MHz. They will also operate on the Awards Net and other frequencies.

9. The masterplan of Sub-Squares will be held by the Award Manager. Copies, together with the Award Rules, will be circulated to the Award Net Controllers. A copy will also be supplied with the Certificate to assist operators to complete the Award.

10. The Sub-Squares identification are:

AL to GL, AM to GM, AN to GN, AO to GO, AP to GP, AQ to GQ, AR to GR, AS to GS, AT to GT, AU to GU, AV to GV, AW to GW, AX to GX, and AA to GA.

11. Claims for Awards are required to show: date, station contacted, band and Sub-Squares worked. SWLs are to quote both stations making contact and only one Sub-Square is to be claimed from each contact logged.

12. The Award commenced on March 25, 1988.

13. The cost of the Award is five only 40 cent stamps (note: only 40 cent stamps please).

14. Endorsements will be forwarded without further charge on receipt of SASE with claim.

15. Claims for this Award and subsequent Endorsements are to be addressed to: The Award Manager, Rotorua Amateur Radio Club Inc, 24 Iles Road, Lynmore, Rotorua 3201, New Zealand.

16. This issue of the Rules of the RF81 Award is effective from May 1 2000.

Southern Polar Plunge Award

This Award sponsored by the Otago Branch NZART Inc, coincides with the longest nights/shortest days of the year and is to highlight the mid-winter activities in the southern parts of New Zealand.

(1) The Award will run in the week of June 21 and contacts with Otago Branch operators on any band or mode are eligible *but* each station may be worked *once* only.

(2) Ten points required for ZL applications (five points for DX stations) may be accumulated from the following allocations:

ZL4AA—Otago Branch Station, three points.

ZL4QK—Branch President, two points.

Any other Otago Branch member, one point.

(3) Award is available to any amateur operators for SWLs who accumulate the necessary points.

(4) The Award application containing a copy of log details and operator's or SWLs name and address plus $5.00 fee to be received by—

The Awards Manager
Otago Branch NZART Inc
PO Box 5485
Dunedin

No later than July 31 each year.

Te Puke Amateur Radio Club NZART Branch 53 Visiting Amateur Award

Objects of the Award

To encourage more use of the radio spectrum.

To ensure foreign amateurs visiting ZL are likely to get a two-way contact.

All classes of ZL licence holders ie, novices, technician and general can compete for the award.

Award criteria

Open to all licensed ZL amateurs who are members of NZART.

Basic Award: Ten QSOs with foreign/visiting amateurs.

Advanced Award: Ten QSOs with foreign/visiting amateurs from 10 different countries.

Supreme Award: Fifty QSOs with foreign/visiting amateurs from 50 different countries.

Award rules/conditions

All contacts must be two-way Voice/Phone within the geographical boundaries of ZL on any of the authorized bands in the amateur radio spectrum.

A "country" as defined by the ARRL DXCC Committee and cannot be a deleted one.

When applying for the award a log extract must be submitted showing: call-sign of station worked, date, frequency and country of origin ie, ZL1/K3ZO (USA).

Cost of Award

$5.00.

Cost of upgrades

$2.00.

Award Manager

ZL1IB
Te Puke Amateur Radio Club Inc
C/- PO Box 10 Te Puke 3071

The Rosetown of New Zealand "Grand Award"

This Award, available in two levels, BASIC ADDICT, is workable world-wide by any Amateur Radio Operator or SWL.

Any mode, any amateur frequency, mixed band usage permitted, and repeater contacts are not barred. Net operation is also permissible.

The object is to contact Grandparent operators, and claim points according to the list given below.

All applicants must be licensed amateur radio operators and their station must be operated in accordance with the Radio Regulations, plus the terms and rules of their own administration. Good operating manners and techniques will be encouraged and only one QSO per call-sign is permitted over the two levels.

Points may be claimed as follows:

A QSO with a Grandparent earns 10 points

who is also a Great-Grandparent earns another 10 points

who is also a Great-Great-Grandparent earns another 20 points

and should there be a Great-Great-Great-Grandparent another 100 points

and each Grandchild, Great-Grandchild, etc, earns 1 points

(For example, two Grandchildren, one Great-Grandchild and two Great-Great-Grandchildren = 5 points plus 40 = 45 sub-total for that QSO.)

The sub-total so claimed, is to be doubled if the operator contacted is a member of the National Radio Society of the country worked: ie, NZART, WIA, ARRL, etc.

The BASIC AWARD of 1000 points (QSL size) $5.00, Overseas US$6.00.

The ADDICT AWARD of 10,000 points (304mm × 203mm) $7.00, Overseas US$6.00.

Basic points can be credited towards the Addict.

Each Award is a beautiful photograph of a rose, and being laminated makes an ideal wall hanging or table placemat. The Award dates from January 1, 1992.

For Log Sheet and Rules, an SASE (or IRC) to: Awards Manager, Te Awamutu ARC, NZART Branch 40, C/- 509/1 Mutu Street, Te Awamutu 2400, New Zealand.

(There is no copyright on photocopying the log or rules.) Applications for the Award to be forwarded with the appropriate remuneration to the above address. Awards by ordinary post.

The Tane Mahuta Award

By Branch 28 with VHF and HF Rules:

1. The HF Tane Mahuta Award for 20 contacts including at least one in the each of the Counties of Rodney, Otamatea, Hobson, Hokianga, Mangonui, Whangaroa, Bay of Islands, and Whangarei with the rules of NZC Award applying.

2. The VHF Tane Mahuta Award for 20 contacts including at least one in each of the Locator Squares RF63, RF 64, RF65, RF74 and that part of RF73 north of 36° 30'; that is, with Sub-Squares ending in M to X. Contacts must be made from one square to another.

3. Portable and Mobile operation is permitted.

4. Multiple contacts are permitted provided the station contacted is located in a different County or Locator Square for each contact.

5. Repeater contacts are permitted if they are made through Northland repeaters at 7100, 7150, 7175, 7200 from outside the Northland area.

6. Contacts on or after January 1, 1985 are eligible.

7. QSL cards are not required. Send certified list of relevant data. BUT for the VHF Award it is necessary to establish the full QTH Locator of the station worked.

8. Applications to Tane Mahuta Award, PO Box 10-078, Te Mai, Whangarei, with cost as within New Zealand NZ$5.00, Australia A$5.00, others US$5.00.

Upper Hutt Award

Available to Amateurs and SWLs with any required endorsement for contacts after July 2 1972 with stations operating in Upper Hutt Valley which count as ONE point except YL ops and Club station ZL2VH which count as TWO points. Upper Hutt applicants require a total of 15 points; rest of New Zealand require 10; overseas require five points. Certified list with FULL QSO data (no QSL cards) with $2.00 or one IRC for New Zealand stations, two IRCs for overseas stations. Post to Upper Hutt Award, C/- 35 Matai Road, Raumati South, Kapiti 6010.

Note

Mobile stations operating in the Upper Hutt Valley count as a contact. Upper Hutt Club members outside the Upper Hutt Valley also count as a contact.

The Wellington Amateur RadiZL1FND Far North Avocado Festival Award

This is an award that will run in conjunction with the Far North Avocado Festival held late February/early March each year. The award will run during the final week of the festival only.

The award is open to all radio

amateurs, including overseas amateurs and SWLs, and can be gained through contacts using 2m, 70cm (including repeaters and the National System) and the HF bands.

Contact confirmation by way of the operator's log will be required and should be received by the contest organizer by the end of April of the current year, together with the fee: New Zealand based operators—$5.00; Overseas—NZ$6.00 equivalent (no (IRCs please). Once the log has been confirmed the certificate will be posted to the claimant.

To gain the award the following points are required:

New Zealand operators: 20.

Overseas operators: 10.

Points can be claimed as follows:

One contact with the Branch ZL1FND operator (compulsory)—five points.

Contact with Branch President or Vice-President (will identify)—four points.

Contact with any Branch 78 committee member (will identify themselves)—three points.

Contact with any other Branch 78 member—two points.

Dates and times (also frequencies for HF) will be notified in the January/February *Break-In* each year.

Claims for the awrd to: The Awards Manager, PO Box 4, Awanui 0552, Far North, New Zealand.

Wairarapa Regional Award

This Award is sponsored by Branches 06, 46 and 82.

Requirements for Award: work eight counties, 12 towns, 15 postcodes, three lakes, four hospitals, eight rivers, two aerodromes, two lighthouses and 23 museums/historic places. The Award can be worked in three stages: basic, upgrade and final.

A check sheet for working the Award is available on written request with SASE, from the Custodian, R. A. Pearce ZL2GJ, *Call Book* address.

This Award may be worked on all bands and all modes starting from January 1, 1997. The "Basic" award costs $5.00. "Upgrade" and "Final" stickers are free on receipt of check sheet and SASE.

Waitomo Award

Make 10 points with Branch 55 contacts as follows: VHF Simplex or CW, two points; VHF or UHF Repeater, 1 point; HF Phone, one point; HF CW, two points; VHF Satellite, two points; Club Station ZL1IZ, two points. Award is open to SWLs.

Log details and $5.00 to I. M. Howitt ZL1IZ, 15 Frederick Street, Otorohanga 2564.

Wanganui Award

For contacts since January 1 1982 with permanent residents in the Wanganui area—one point; with Wanganui-based Mobile stations regardless of location—one point; with ZL2JA—two points. Overseas stations require three points; ZLs require five points. (Repeater contacts acceptable.)

QSO details with $3.00 or five IRCs to Award Manager, 1 Caversham Road, Wanganui.

Old Timers' Club

Old Timers' Award

Rules for the Award

Ten contacts with OTC (ZL) members, each contact worth one point, Phone or CW with an upgrade of 50 points.

The information required on each contact is: call-sign, date, time, name and OTC number. Contacts must be on or after launch date December 8, 1995.

Logs with remittance of $5.00 or IRCs to Bob Pearce ZL2GJ, *Call Book* address. Note that points may *not* be gained on the OTC National Net on Sunday mornings.

New Zealand Women Amateur Radio Operators

WARO Award

General

Contacts may be any mode, any band or mixed. No QSLs required. Send full log details certified by one other licensed radio amateur to Custodian Lynnette McDonald ZL1LL, 25 John Street, Pukekohe 1800, New Zealand with sufficient postage for return of award.

HF Section

ZL and VK stations work 12 WARO members resident in New Zealand, DX stations work six. Contacts to date from June 1 1969. Endorsement seals available to ZL and VK stations for each additional 12 contacts, DX stations six. Contacts with DX members of WARO qualify for endorsements but applications must contain at least three ZL contacts.

VHF Section

Ten VHF contacts with WARO members dating from January 1 1979. WARO members and/or applicants may be home station, mobile or portable. Endorsements for each additional five.

SWL Section

ZL and VK stations list 20 contacts heard with WARO members, DX list ten, dating from January 1 1979. List full log details with call-signs of both stations. Endorsements for each additional ten (five for DX stations).

NZWARO Century Award

1. Applications to contain full log details of contacts with 100 NZWARO members (DX members included) dating from June 1 1987, and to be signed by one other licensed radio amateur.

2. Contacts may be any mode, any band or mixed, and from any QTH, but each YL claimed must be a financial member of NZWARO at the time of the contact and may be counted once only.

3. Contacts made via repeaters and in nets will qualify and contest contacts made after June 1 1990 will be accepted.

4. No QSLs required. Send list of full log details and $2.00 to Custodian, Lynnette McDonald ZL1LL, 25 John Street, Pukekohe 1800, New Zealand.

NZWARO Mountain Buttercup Award

1. For contacts with licensed NZWARO members, resident, visiting, mobile, etc, in the 60 towns named in the official list. WARO members working mobile, portable, etc may claim the relevant town for her own credit.

2. Basic award is available for list of 30 contacts with endorsement seals for each further five contacts up to the full 60 required. Applicants submitting a list of the full 60 valid contacts will receive a special endorsement making the award distinctive from those gained for the lesser number of contacts.

3. Contacts may be any mode, any band or mixed and made from any QTH, but each YL worked must be a financial member of NZWARO at the time of the contact and must be within a 25 km radius of the centre of the town claimed.

4. Contacts made via repeaters, in nets and in contests will qualify and the same WARO members may be contacted in any number of towns.

5. Award dates from January 1 1989. Send applications after 30 contacts containing full log details with the name of YL and town where worked, signed by one other radio amateur, together with $2.00 to Custodian Lynnette McDonald ZL1LL, 25 John Street, Pukekohe 1800, New Zealand. An official list of towns required to be worked available from the custodian upon receipt of stamped addressed envelope. No QSLs required.

6. A different series of endorsement seals is available for each further ten contacts (after the basic 60) using the same list of towns. The same WARO members may be worked but each must be in a different town to where previously claimed. Please send SAE with endorsement applications.

North Island

1. Auckland
2. Dannevirke
3. Dargaville
4. Eketahuna
5. Featherston
6. Gisborne
7. Hamilton
8. Hawera
9. Helensville
10. Kaikohe
11. Kaitaia
12. Masterton
13. Matamata
14. Morrinsville
15. Napier
16. New Plymouth
17. Opotiki
18. Orewa
19. Otaki
20. Paihia
21. Palmerston North
22. Papakura
23. Putaruru
24. Rotorua
25. Taihape
26. Taumarunui
27. Taupo
28. Tauranga
29. Thames
30. Te Awamutu
31. Te Kuiti
32. Turangi
33. Upper Hutt
34. Waihi
35. Wairoa
36. Wanganui
37. Wellington
38. Wellsford
39. Whakatane
40. Whangarei

South Island

41. Alexandra
42. Ashburton
43. Balclutha
44. Blenheim
45. Christchurch
46. Cromwell
47. Dunedin
48. Gore
49. Greymouth
50. Hokitika
51. Invercargill
52. Kaikoura
53. Motueka
54. Nelson
55. Oamaru
56. Queenstown
57. Reefton
58. Timaru
59. Wanaka
60. Westport

NEW ZEALAND COUNTIES

NORTH ISLAND

NORTH ISLAND COUNTIES

1. Mangonui
2. Whangaroa
3. Holianga
4. Bay of Islands
5. Whangarei
6. Hobson
7. Otamatea
8. Rodney
9. Great Barrier Island
10. Waitemata
11. Franklin
12. Raglan
13. Waikato
14. Waipa
15. Otorohanga
16. Waitomo
17. Taumarunui
18. Coromandel
19. Thames
20. Hauraki Plains
21. Ohinemuri
22. Piako
23. Matamata
24. Tauranga
25. Rotorua
26. Taupo
27. Whakatane
28. Opotiki
29. Waiapu
30. Waikohu
31. Cook
32. Wairoa
33. Hawke's Bay
34. Waipawa
35. Patangata
36. Waipukurau
37. Dannevirke
38. Woodville
39. Clifton
40. Taranaki
41. Inglewood
42. Stratford
43. Egmont
44. Eltham
45. Waimate West
46. Hawera
47. Patea
48. Waimarino
49. Waitotara
50. Wanganui
51. Rangitikei
52. Kiwitea
53. Pohangina
54. Oroua
55. Manawatu
56. Kairanga
57. Horowhenua
58. Hutt
59. Pahiatua
60. Akitio
61. Eketahuna
62. Masterton
63. Waiarapa South
64. Featherston

SOUTH ISLAND

SOUTH ISLAND COUNTIES

65. Marlborough
66. Awatere
67. Kaikoura
68. Golden Bay
69. Waimea
70. Buller
71. Inangahua
72. Grey
73. Westland
74. Amuri
75. Cheviot
76. Waipara
77. Kowai
78. Ashley
79. Rangiora
80. Eyre
81. Oxford
82. Tawera
83. Malvern
84. Paparua
85. Waimairi
86. Heathcote
87. Halswell
88. Mount Herbert
89. Akaroa
90. Chatham Islands
91. Wairewa
92. Ellesmere
93. Ashburton
94. Geraldine
95. Levels
96. Mackenzie
97. Waimate
98. Waitaki
99. Waihemo
100. Waikouaiti
101. Peninsula
102. Taieri
103. Bruce
104. Clutha
105. Tuapeka
106. Maniototo
107. Vincent
108. Lake
109. Southland
110. Wallace
111. Fiord
112. Stewart Island

Overseas Awards

Note

1. There are hundreds of awards which are publicised in amateur radio periodicals throughout the world each month! Many are listed in RSGB publication Amateur Radio Awards (priced in UK $1.20) and several publications of DX Awards Guide by Chuck Ellis, priced about $7.00 to $8.00 each! CHC Directory of Awards has been revised and published by NZART member Scott Douglas KB7SB. This is a very comprehensive publication selling for about US$12.50 (check with NZART Awards Manager about these).

2. Most overseas awards can be certified by NZART Awards Manager so the QSLs don't have to be sent overseas BUT, always send a FULL checking list with all QSO data, etc., on which can be written the certification and which can be sent as the application. (ARRL Awards cannot be certified).

3. ALWAYS SEND SUFFICIENT RETURN POSTAGE for QSLs, etc. Print name and address on each sheet of paper used.

A-1 Operator Club

The basic aim of the A-1 Operator Club is to promote good operating in the amateur bands. To become a member one must be nominated by at least two operators who already belong. Every amateur should strive to merit nomination by following standard operating practice, by observing the rules of good Phone operation, and making his CW as clean and accurate as possible. An attractive certificate is awarded to each amateur who qualifies for membership. Note: This award is sponsored by the ARRL. Several ZL amateurs are members. Strive to merit nomination—you never know who may be listening. Similar awards are: TOPS; FOC; HSC.

WAC—Worked All Continents

Issued by IARU only through affiliated Societies. Applications from financial members of NZART only, must be made through the Awards Manager, accompanied by a checking sheet, QSL cards from the six continents, and return stamped envelope.

The following eight certificates are available: Basic (mixed mode), CW, Phone, SSTV, RTTY, FAX, Satellite and 5-band. In addition, the following endorsement stickers are available: QRP, 1.8 MHz, 3.5 MHz, 50 MHz, 144 MHz, any higher frequency band and 6-band. Contacts made on 10/18/24 MHz or via satellite are void for the 5-band certificate and 6-band sticker.

QRP is defined as five watts OUTPUT (10 W input) and QRP contacts must date on or after January 1 1985.

ZL applicants must be NZART members and enclose Break-In label with application.

There is NO charge.

RSGB Awards

For WBC, BCRTA, CDX, etc—SASE to NZART Awards Manager.

French Awards

For information on DDFM, DUF, DTA, DTC, DPE and other French Awards send an SASE to the NZART Awards Manager and include a 40 cent stamp. (Applicants for These Awards can be certified by NZART Awards Manager.)

ARRL Awards

WAS—Worked All States

Obtain the rules and application forms for WAS and 5BWAS by sending a business-size SAE and a few IRC to the ARRL Headquarters, 225 Main Street, Newington, CT 06111, USA.

DXCC—DX Century Club

*See "Countries List" in this *Call Book*.

Many endorsements etc. available—full reprint of rules (4 A4 sheets) from Awards Manager for $1.00.

KAPITI COAST MUSEUM—WAIKANAE

The Waikanae District Museum was established in 1984 in the old Post Office Building, 9 Elizabeth Street, Waikanae—the Post Office building dating back to 1907. The driving force behind the radio collection consisted of George Anderson ZL2JG, Roy Curry ZL2AIP, Reg Danrell ZL2DR, Len Simpson ZL2HH, Les Wright and Dr Philip Bray.

The name was changed to Kapiti Coast Museum in 1993 to reflect the change in local authority organization. The interior of the building was radically upgraded during 1993/94, more emphasis placed on local history and the museum, under its new name, and was re-opened in October 1994 by the Rt. Hon. Doug Graham.

The radio collection includes a good range of domestic receivers, ZL2AB's original station (1923), and ZL4GE, now ZL2JG, 1933 Hartley transmitter. The ZL2GX collection of Collins, National HRO and other receivers is on display. The Amateur station ZL6KCM is affiliated to NZART and RSARS and vintage equipment operated.

The museum also has a collection of telegraph keys and associated instruments plus a very good display of telephone equipment.

Pictured is George Anderson ZL2JG, backed by a number of the classics of yester-year.

A collection of early domestic receivers dating from 1925. ZL2AB's original station is displayed in the foreground.

The museum is interested in obtaining items of historical interest and always keen to welcome new members to assist with the management of the museum and restoration of exhibits. The museum is open from 2pm to 4pm Saturday and Sunday and all Public Holidays. The museum can be opened outside these hours on request by contacting George Anderson (04) 293-6881.

ARDF AMATEUR RADIO DIRECTION FINDING

What is ARDF?

In simple terms ARDF is looking for a transmitter. In IARU Region III ARDF is played on 80 m and 2 m

The competition would normally be in a rural area, preferably wooded valleys. Within this area are placed five transmitters that have to be found by the competitors. A sixth transmitter is usually provided at the finish line to help lost competitors find their way home.

Each transmitter will be keying a unique identification code in the form MOE, MOI, MOS, MOH, MO5. On VHF this will be MCW and CW on HF. These correspond to transmitters numbered one through five.

At the competition there may be several classes of competitor, not all classes are required to find all the transmitters.

Contestants are free to find the transmitters in any order they wish.

There is a time limit set for the course. Any competitor who has not finished within this time is disqualified. This time limit is set by the organizing group and takes into account the number of competitors, the terrain and the length of the course. IARU Region III rules recommends that it should be 100 to 140 minutes for a 4–7 km course.

The five transmitters on the course operate sequentially on a common frequency. Each transmitter will operate for one minute and then be silent for four minutes, during which the other four transmitters will operate.

In ARDF the transmitters are not usually "hidden", and in fact a competitor is only required to find the control point, which will be within 2 m of the transmitter. Figure 1 shows a typical control point.

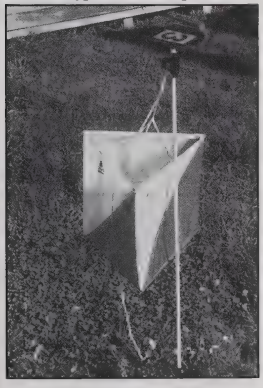


Figure 1.

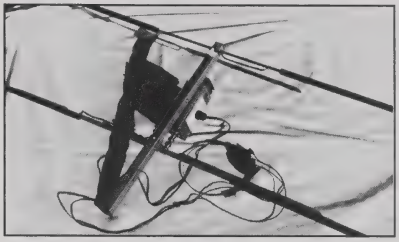


Figure 3.

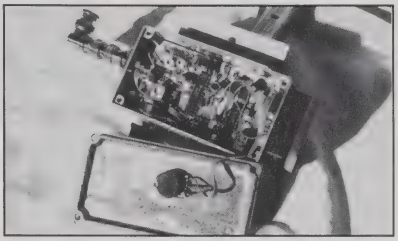


Figure 4.

Included at the control point is a "punch" that is used to mark your card to prove that you have visited the control point.

At each transmitter a referee will be sited to ensure there is no collusion between competitors as ARDF is an individual sport. Also the referee will ensure there is no "foul play", etc.

The "winner" of the event is the competitor who finds the most number of transmitters for their class in the shortest time.

What is needed to participate?

That depends a bit on you and on the course. It is possible to use a simple handheld. Any form of directional aerial can be used for ARDF, additionally an attenuator and a method of accurately determining signal strength would be useful.

As the level of competition becomes "keener" your equipment needs to become more refined. There are a number of commercial receivers available at a range of prices. Most of these receivers provide attenuators to cover a wide dynamic range and audible and visual strength indicators.

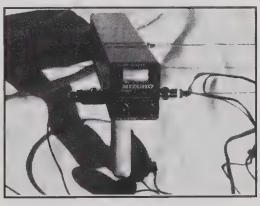


Figure 2.

Figure 2 shows a Japanese ARDF receiver. This is an excellent commercial design packed full of features. The unit is available from Apex Communications.[1]

A full set of equipment is available from Australia from Ron Graham.[2] Figures 3 and 4 are a couple of view of Ron Graham's VHF receiver. This is an AM dual conversion superhet based on the MC6632 chip. It is tuneable over the bottom part of 2 m and includes an audio signal strength indicator. The antenna is a modified HB9V.

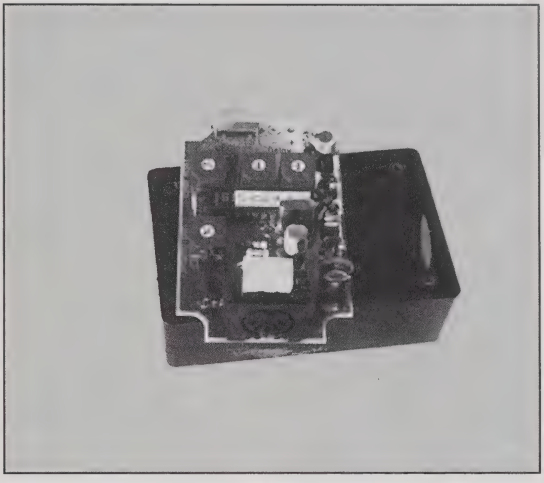


Figure 5.

The Auckland VHF Group[3] has available a microprocessor key that will meet most requirements (Figure 5). This was designed to interface with handhelds to provide Clubs with a quick and easy way to provide VHF ARDF transmitters. It also includes an output for keying a 80 m transmitter.

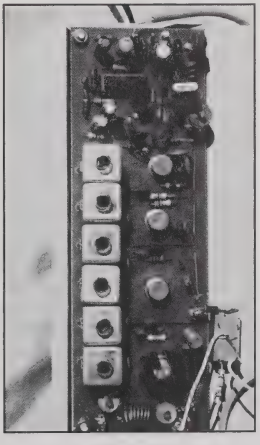


Figure 6.

Figure 6 shows a typical 2 m transmitter that can be used as the hidden transmitter.

How fit do I need to be?

If you can walk 5 km then you will be able to compete in club events with a degree of success.

As the level of competition increases, so must your physical "prowess". To become a Regional or World Champion you should expect to become very much more athletic.

For most people there is a great amount of participation and fun that can be had between these two extremes.

Happy ARDF

References

1. Dave Walker, Apex Communications, Napier. Telephone (06) 876-5014.

2. Ron Graham Electronics, Box 323, Sarina, Queensland 4737, Australia.

3. Auckland VHF Group, Box 10-138, Dominion Road, Auckland 1030.

One of the many facets of Amateur Radio is operating in a contest. This is basically attempting to make as many contacts as possible in a given length of time. Depending on the rules of the specific contest, those contacts may be on one band, or all the bands (generally WARC bands excluded) and the mode can be Phone, CW or Digital. In most overseas contests, only one contact with each station on each band is permitted during the contest period. However, in New Zealand, due to the relatively low number of amateur radio operators in the country, the total contest operating time is often broken into contest periods, typically of one hour. The same station can be worked in each new period. This helps to keep the level of interest and activity up on the bands.

For the newcomer to contests, getting started requires nothing more than to read the rules for the particular event and after establishing contact with another participant in the appropriate or chosen mode, exchange the required information. This exchange of information usually includes an RS(T) report and a number starting with 001 and increasing by one for each contact. This incrementing number is by no means the only method used and other reports may require your CQ or ITU Zone Number, your age, your name or your NZART Branch number. The idea is to generate a report that can be verified by the receiving station and therefore complete the QSO.

There are basically two contest operating methods:

Running—select a clear frequency (if possible), call CQ Contest on phone or CQ Test on CW and answer all callers.

Search and Pounce—tune the band(s) in use and answer each CQ you hear being called.

It goes without saying that a station with efficient antennas is going to be hard to beat, but even with a simple dipole, very good results can be obtained. After a few attempts, the incentive to improve antennas, equipment and operating skills will be great.

Another way to break into contest operating is to join a group that participates in contests such as Branch teams in the Jock White Memorial Field Day Contest or groups that take part in international contests, such as the group at Auckland Contest Group or the Quartz Hill Group in Wellington. These groups tend to take part particularly in the premier international contest—the CQ World Wide SSB and CW contests on the last weekends of October and November. These contests are sponsored by CQ ham radio magazine, which also sponsors other contests.

To make closer contact with our neighbours across the Tasman, participation in a number of Australian contests is encouraged. Some of the Australian sponsored contests are; the John Moyle Memorial Field Day—third full weekend of March, trans/Tasman 80 m Contest—first Saturday in June 0800–1400, Pacific 160 m Contest—third Saturday in July 0700–2300, Remembrance Day Contest—weekend nearest 15 August 0800 Saturday–0800 Sunday.

Contests organised by NZART.

Jock White Memorial Field Day

Last full weekend in February 40/80 m Ph/CW Branch Field stns

Thelma Souper Memorial

Refer to WARO column

Sangster Shield Contest

Third full weekend in May 8 0 m, CW only QRP and new operators.

Memorial Contest

First full weekend in July 80 m Ph/CW/both commemoration.

Waitakere Sprints (Sunday)

Last in July/first in August 80 m: Ph-CW separate one hour sprints.

Doug Gorman Memorial Frequency Measuring

First Monday September 80 m Measure three frequencies.

Nostalgia Night

Second full weekend September 80 m AM/CW old or WW II equipment.

Oceania Contest

First and Second full weekend October. All band Ph and CW. Ph 1st, CW second weekend.

Straight Key Night

First Sunday November 80 m CW straight keys only.

The Thelma Souper Memorial is organised by WARO and the Waitakere Sprints are organised by the Western Suburbs radio Club.

Full rules of the contests are given below and these are also available on the NZART Contest website http://www.nzart.org.nz/nzart/update/contests. Any changes to the rules plus dates etc. are given in the Contests column in *Break-In*. The calendar associated with the column lists the international and local contests for the coming months and gives full details of the more popular events.

Contesting, Internet and logging.

The Internet is very complementary to amateur radio in many of the facets of the hobby and this certainly applies to contesting. There are many sites dedicated to contests, most with links to other contest and allied sites such as DXing, software etc. There are several contest calendars which list all of the international contests month by month with links to the particular contest rules, previous years results, high scores etc. Some of the Announced DXpedition web pages list the DXpedition stations that have announced activity in a particular worldwide contest.

Other web sites have tools and aids for contesting such as logging programmes like NZLog, CT, TR etc., programmes for practising phone and CW pileups, reflectors where discussions and stations claimed scores are listed. NZlog is produced by Denys ZL2AWH. A logging programme used by many is CT by K1EA. The programme can be purchased from the USA and can be updated as changes are made periodically. For example the DXCC list is changed periodically and the countries list in CT can be updated with a file from the web.

Logging programmes ease the logkeeping chore once keyboard skills are obtained, and provide many features to facilitate contest operating. The main worldwide and USA contests plus DXpedition mode can be selected within CT and TR. The DXpedition mode can be used as a home station log. These logging programmes cater for phone and CW operation with the "F" and other general keys being used for CQing, sending the exchange etc. The CW speed can be varied. TR by N6TR has two modes "Running" (CQing) and "Search & Pounce".

The programmes also offer QSL label printing, interconnection with DX clusters and frequency changing of tranceivers to DX spots. New features are added periodically. CT versions have progressed up to version 9. Versions 8 and 9 require a 386 PC or better. Earlier versions ran on a 286.

Some of the many websites related to contesting are

Contest Calenders

www.sk3bg.se/contest/index.htm

www.arrl.org/contests

www.hornucopia.com/contestcal/

www.hamradio.de/contest

CT Log Programme

www.k1ea.com

KA9FOX Contest Score Rumours

www.qth.com/ka9fox/scores.shtml

CQ Worldwide Contests

www.cqww.com

Contest Resources & Information

www.contesting.com

www.qsl.net/cwsp/k1ar92e.htm

http://oh2aq.kolumbus.com/dxs

Announced DXpeditions

www.usats.com/ce-dx.html

As Contest Manager, I am happy to provide full information on almost any contest held worldwide. Enclose a self-addressed, stamped envelope with your request.

Contests can be fun. Give it a go.

NZART Sangster Shield Contest

Presented to the amateurs of New Zealand by Mr R. Sangster in 1927, the Sangster Shield is for annual competition to be won by the most efficient station. In this respect it should be pointed out, that in addition to the efficiency of the equipment used, the efficiency of the operator is of the utmost importance. To win this contest marks an operator as one who not only knows how to obtain the most effectiveness from low power but also one who is most proficient in the art of telegraphic communication.

Rules

1. **When?** Third full weekend of May each year, between the hours of 2000 NZST and 2300 NZST on each evening. The maximum period of operation will be six hours.

2. **Power:** To compete for the Sangster Shield and Trophies the output of the transmitter must not exceed 5 Watts.

3. CW to CW contacts only are permitted.

4. All operations must be in the 80m band.

5. **Contacts:**

a. QSOs with any one station are permitted once only each half hour, based on an "even half hour" basis, eg 2000 to 2030,2031 to 2100 etc.

b. It is not permissible to claim QSOs with the same station "twice running", i.e. at the end of one half hour period and at the beginning of the next, unless a different station is contacted by one of the two stations between QSOs, or a time delay of at least five minutes elapses between QSOs.

6. All ZL entrants must be financial members of NZART, except for first time entrants qualifying for the Transistor Trophy.

7. All Radio Regulations must be observed.

8. To give QRP contestants a fair chance (particularly with DX stations) higher power stations are requested to operate above 3530 Khz.

9. **Logs:**

a. Quarto or A4 size paper—preferably NZART log sheets.

b. Data in this order: Date, Time, Station Callsign, Cypher Sent, Cypher Received, Points Claimed.

c. **On a seperate sheet** a summary to show:

i. Entrant's callsign, name and address in BLOCK LETTERS.

ii. Number of contacts with stations using 5W or less.

iii. Number of contacts with stations using 6W or more.

iv. Number of contacts with overseas stations.

v. List of different branches worked with the number and name of each branch as given in the Call Book (in branch number order) plus the callsign of the station claimed for that branch.

vi. Total score—(total points multiplied by the number of branches worked)

vii. Description of equipment, antenna and output power used.

viii. Signed declaration that all contest rules have been observed.

10. Cypher system:

a. RST followed by branch number followed by power output—eg 569/11/04. indicating a 569 report; branch 11; and power of 4W. Power will always be given as two figures: over 100W will be given as 99, while below 10W will be preceded by 0.

b. Overseas stations are required to give RST plus a serial number beginning at 001.

11. **Scoring:**

For ZL entrants:

a. ZL to Overseas—10 points

b. ZL to ZL with Power given as 5W or less—5 points.

c. ZL using 5W or less to ZL with Power given as 6W or more—1 point.

d. ZL using 6W or more to ZL with Power given as 5W or less—1 point.

e. ZL using 6W or more to ZL with Power given as 6W or more—Not permitted for contest purposes.

For Overseas entrants:

a. Overseas using 5W or less to ZL with Power given as 5W or less—10 points.

b. Overseas using 5W or less to ZL with Power given as 6W or more—5 points.

c. Overseas using 6W or more to ZL with Power given as 5W or less—5 points.

d. Overseas using 6W or more to ZL with Power given as 6W or more—Not permitted for contest purposes.

e. Overseas to Overseas—Not permitted for contest purposes.

Final score is total points multiplied by the Number of Branches worked. **Note:** Contacts with a Contestant's own Branch are OK for points but are not to be counted as a multiplier.

12. Mobile or Mobile/Portable operation will be permitted for New Zealand stations, however, the station must be operated from *one location* each evening. This means a station could operate from one location the first evening and another location on the second evening. The station must use the Branch number applicable to its location at the time. The entrant may combine both logs for contest purposes, but the logs must indicate their locations on both evenings. In this case then only one branch (either) is to be eliminated as an "own Branch" multiplier. Overseas Stations may be mobile or portable, but a maritime mobile station must be outside New Zealand's territorial waters to be counted as a DX contact.

13. Discounted Contacts: The Contest Manager expects that participating stations will provide a fair chance for all entrants to make contact with them. While it is not intended to discourage contestants from operating only part of the full contest it is considered that at least 20 contacts should be made and station operation should be over at least 3 half hour operating periods. Stations considered to have worked less than this requirement will have their contacts and branch multiplier contribution deducted from contest logs.

14. **Awards:**

a. ***Sangster Shield:*** to the highest scoring entrant using 5W or less and observing the rules as enumerated. (Note that all first time entrants qualifying for the Transistor Trophy will also be eligible for the Sangster Shield Award)

b. ***Transistor Trophy:*** to the highest scoring entrant using 5W or less and observing the rules as enumerated, but in addition who has been licensed for 12 months or less. Entrants must give Operator's Certificate number together with date of issue.

c. ***The "Arthur Stevens Trophy":*** will be presented to the highest scoring South Island entrant using 5W or less. (This trophy is in honour of Arthur, formerly ZL1MT, a very long time stalwart of the Sangster Shield Contest).

d. Certificates to the first three entrants using 5W or less, also to the first three "newly licensed" entrants qualifying for the Transistor trophy.

e. Certificate to entrant using 6W or more with the highest score.

f. Certificates to Overseas entrants with the highest score in their respective call areas.

g. Certificate to the branch with the highest aggregate score from three entrants operating in the QRP section. A minimum of three entrants are required to be eligible for this section. The top three scoring entrants for any Branch will automatically be aggregated—it is not necessary for a Branch to send in an entry for this section.

15. Logs must be posted to reach the Contest Manager, Glenn Kingston ZL2KZ, 53 Tannadyce Street, Wellington 6003, on or before the third Thursday of June.

Jock White Memorial Field Day Contest

Last full weekend of February

This annual contest has been named to honour Jock White ZL2GX, NZART Contest and Awards Manager for over 40 years, for the service that he gave to NZART during that time. This contest, like many others, results from Jock's initiatives.

Home stations are NOT valid contacts in this contest.

This contest is primarily a Branch FIELD station event to test Branch organisation and weld a team of workers together. There is work for all members—XYLs, OMs, YLs and SWLs.

Of special significance

1. The term "Branch Points" replaces the more common term "multiplier" in these rules. Refer rule 14.2. There is no change in concept, just a name change.

2. The minimum number of contacts for a station to qualify as "Branch" points for other stations is 50 on Phone or 25 on CW. Refer rule 14.2.4.

3. Restrictions applying to the use of linear amplifiers are given in rule 7.1. Complaints about the use of linears will be investigated.

4. Team leaders should ensure that all of the team understands the rules and that newcomers are assisted with their operating technique.

5. Stations should be operated within the amateur "codes" as regards procedures, equipment, operating speeds etc.

6. Have you considered entering the QRP section?

Rules

1. **When:** The last full weekend in February each year.

Saturday 0200–1100, 1700–2400 UTC. (1500–2400 NZT)

Sunday 0000–0200 UTC (0600–1500 NZT).

2. **Bands:** 40 and 80 metres.

2.1 Simultaneous operation on 80 and 40 metres is permitted provided that only one receiver/transmitter is operational on any one band at any one time.

3. **Modes:** Phone and CW.

3.1 Phone to CW contacts are not permissible.

4. **Sites/shelter:** All equipment (except generators) to be under the same shelter. The shelter to be a tent (one or more tents within 10 metres of each other) erected on the morning of the contest, mobile home or other vehicle (moved on to the site on the morning of contest) .

5. **Antennas:** to be raised no earlier than 2300 UTC on the Friday (1200 NZT on the Saturday).

6. **Power:** must be from a source independent of the AC or DC mains—ie. all power must be from batteries/engine alternator/vibrator/solar source/wind generator etc.

7. **Contest Sections:** One section of the contest may be entered by any one station although that station may qualify for more than one section.

7.1 Open sections: The maximum output power from the transmitter final amplifier must not exceed the legal limit given in the Radio Regulations. Linear amplifiers may only be used to

increase the power output of low power transmitters (eg 5–30 W) to the equivalent of a typical transmitter (ie nominal 100/150 W). These sections are for stations in the appropriate region or category. The trophies stated will be awarded to the highest scoring station in the section. Certificates will be issued to the winners of each section plus placegetters as warranted by entry numbers.

7.1.1. Northern Region Section (Montgomery Cup)

7.1.2. Central Region Section (Patea Shield)

7.1.3. Midlands Region Section (ZL3/4 Trophy)

7.1.4. Southern Region Section ("4" Trophy)

7.1.5. Single Operator Section—operation unaided by any other person.

7.1.6. CW Only Section—operation on either band or both bands CW only.

7.1.7. Phone Only Section—operation on either band or both bands Phone only.

7.1.8. Other Power Section—power source solar, wind generator, water etc.

7.1.9. 80 Metres Only Section—operation on 80 metres only.

7.2 QRP Section (W M Hall Memorial Cup): The maximum output power from the final amplifier must not exceed 5 watts.

8. **Operators:** The station should be operated by members of NZART except that operators being introduced to NZART and helpers need not be members. Indicate accordingly on the summary sheet.

9. **Mobile Stations:** are eligible for contest purposes for contacts made from within one branch area only. The branch number used will be that of the area where the station is operated.

10. **Cypher Exchanges:**

10.1 The cyphers given will consist of report and serial number/branch number. eg. 59001/11 on phone and 599001/11 on CW.

10.2 Serial numbers will commence at 001 and increment by one for each contact.

10.3 Where simultaneous operation is used a separate serial number series will be used for each band.

10.4 Phone and CW numbers on one band are from the same number series.

11. **Branch Number:** is the NZART Branch number for the area in which the station is operated except that stations may move a few kilometres from their home area to a suitable location. eg. city to country.

11.1 If the chosen location is within another Branch area care must be taken not to clash with the other Branch station. The onus is on the "moved" station to ensure that there is no clash.

11.2 The Branch number of Branches in recess may be used.

12. **Contest Periods:**

12.1 There will be 18 periods between the even hours. eg. 1500–1600, 1600–1700, etc.

12.2 Contacts may be made with any field or "overseas" (refer rule 13) station once each period on each mode on each band. ie. on 80m: once on phone and once on CW, and on 40 m: once on phone and once on CW, each period.

12.3 The contacts with any one station on phone and CW on one band in a period, or on one mode at the end of one period and commencement of the next, may not be sequential except where 5 minutes have elapsed between those contacts.

13. **"Overseas" Stations:** are those located outside the New Zealand mainland, and in the South Pacific region. The prefixes that are eligible are: all VK, ZL5, 7, 8, 9, A3, FK, FO, FW, H4, P2, YJ, ZK1, 2, 3, 3D2, 5W.

14. **Scoring:** The final score will be the total of contact points (80 m + 40 m) × total Branch Points.

14.1 Contact points:

FD phone 3 per contact

FD CW 5 per contact

Overseas phone or CW 10 per contact

14.2 Branch Points (multiplier):

14.2.1 One Branch point is claimed for each Branch contacted on each band and mode. eg. One Branch point for contacting Branch 01 on 80 m phone, two Branch points for contacting Branch 01 on 80 m Phone and 40 m Phone or 4 Branch Points for contacting Branch 01 on 80 m Phone and CW plus 40 m Phone and CW, etc.

14.2.2 Only one station from a branch may be claimed as a Branch point for a mode on one band. However, where a Branch has more than one station active different stations contacted may be claimed for the other band or mode.

14.2.3 Stations using the same Branch number may contact each other for contact points but not for Branch points.

14.2.4. To qualify as Branch points for other stations, a station must have a minimum of 50 contacts on Phone or 25 contacts on CW on each band that the station is active on. eg. if active on 80 m Phone, must have 50 contacts to count as one Branch point, if active on 80 m Phone and CW, must have 50 contacts on phone and 25 contacts on CW to count as two Branch points, etc.

15. **Logs:**

15.1 One log per station in order of time, except that where simultaneous operation is used one log per band is required.

15.2 Head each page with the call, Branch and page number.

15.3 Log sheet layout order: date/time/station contacted/CW or PH/band/cypher sent/cypher received. NZART log sheets are preferred. Entry in the points column is not required as totals are done from a summary, but the points column can be used for checking purposes. A total of PH/CW/DX contacts on each page is useful for counting purposes.

15.4 Use a separate logsheet per period except that where there are very few contacts per period, several periods (ruled off between periods) can be on one sheet. The operator (not logkeeper) must sign and write their own callsign adjacent to or below the entries for their time of operation. It is recommended that this operator be responsible for checking this section of the log.

15.5 Highlight or underline each contact claimed as a multiplier.

15.6 Check for accuracy and rule through any duplicate contacts in a period.

16. **Summary:**

16.1 The summary and final score details are to be on the "Jock White Memorial Field Day" summary forms provided to Branch secretaries each year and also available from NZART HQ.

16.2 Summary Sheet 1 contains:

16.2.1 callsign used, Branch name and number.

16.2.2 postal address for certificates.

16.2.3 section entered (one only).

16.2.4 names and calls of operators/assistants.

16.2.5Number of 80 m Phone contacts.

Number of 80 m CW contacts.

Number of 80 m overseas contacts.

16.2.6 Number of 40 m phone contacts.

Number of 40 m CW contacts.

Number of 40 m overseas contacts.

16.2.7 Calculation of contact points.

16.2.8 Branch points claimed for 80 Phone.

Branch points claimed for 80 CW.

Branch points claimed for 40 Phone.

Branch points claimed for 40 CW.

Total Branch points.

16.2.9 total points claimed (contact points × total Branch points).

16.2.10 List transceivers/generator etc/power output.

16.2.11 Certification of power output and rule observance by two operators (except for single operator stations).

16.3 Summary Sheets 2 and 3 contain a table for listing the CALL-SIGN of the station claimed as a Branch point for each branch on each band and mode. Count the number in each column and transfer the figure to summary sheet 1.

17. **Closing Date:** Logs should be posted to reach Stan White ZL2ST 54A Auckland Rd., Greenmeadows, Napier by the Saturday which is 4 weeks after field day Saturday. eg. If Field Day is held February 24/25, logs to be received by 24 March (in a non-leap year). Late logs will not be eligible.

Nostalgia Night Contest

Nostalgia Night will be held each year on the second Saturday of September—put it in your diary now. This will give you plenty of time to fish out that old gear, check it out, make any necessary repairs, and then have a night of enjoyment just like the "good old days". Remember how much fun it was to go on the air? Nostalgia Night puts the fun back into Ham Radio. Put in plain language that means: drift, noise, smoke, heat, fading, and other fun things

Haul out that old equipment, dust off the cobwebs, check it over and join ina night of nostalgic fun. This year's contest will be in three sections, catering for the varied interests within the old equipment enthusiasts' ranks:

1. QRP
2. Military
3. Open

When?

Second Saturday in September, with four operating periods:

0700–0745 UTC (1900–1945 NZT), AM ONLY

0745–0830 UTC (1945–2030 NZT), CW ONLY

0830–0915 UTC (2030–2115 NZT), AM ONLY

0915–1000 UTC (2115–2200 NZT). CW ONLY

Equipment

Any rig of the past that includes thermionic valves, be it home made, of military origin, commercial or amateur which was new prior to 1970. Completely solid state rigs or rigs built after 1970 may not be used for this event.

Mode

Modes used shall be AM or CW only.

Exchange

Call sign, RS(T), Branch number, and time to be logged for each QSO

Points Awarded

Three points for Phone QSO.

Six points for CW QSO.

Score Calculation and Multipliers

Total number of Branches worked during the event, multiplied by the total number contacts. Each Branch is counted only once, and not once each period.

Example: 10 Branches worked and 30 total contacts (in all periods) = (10 × 30 = 300)

QRP Section: 5 W or less input, multiply your score by 1.5.

Military Section: rigs of military origin, i.e., ZC1 ARC5, multiply your score by 1.2.

Open section: rig is other than 1 or 2 but built previously to 1950, multiply score by 1.2

Only one multiplier can be used; i.e. Military equipment running less than 5 W and built prior to 1950 earns the highest multiplier of 1.5 only.

Repeat QSOs

Stations can be worked only once during each period. Consecutive contacts with the same station in consecutive periods is not allowed.

Send Logs to

Nostalgia Contest
ZL1RD
73 Tender Road
RD 4 Albany
Auckland

by the fourth Saturday in September and Include only the following:

1. Number of QSOs on CW

2. Number of QSOs on Phone

3. Number of Branches worked

4. Score claimed (contacts x Branches)

5. Overall score claimed (points in four times multiplier)

6. Details of equipment used for the event.

7. Do not send a copy of log or contacts, just the above information;

8. Have a lot of fun on the night!

Rob rob@ix.net.nz

Aid for computing points

Contacts	Phone		CW	
No	Points	Total	Points	Total
1	15	15	15	15
2	14	29	14	29
3	13	42	13	42
4	12	54	12	54
5	11	65	11	65
6	10	75	10	75
7	9	84	9	84
8	8	92	8	92
9	7	99	7	99
10	6	105	6	105
11	5	110	5	110
12	4	114	5	115
13	3	117	5	120
14	2	119	5	125
15	1	120	5	130
16	1	121	5	135

Doug Gorman Memorial Frequency Measuring Contest

When?

First Monday in September at 0915 UTC (2115 NZT).

(1) Listen to ZL6A on approximately 3900 kHz for instructions on the frequencies that will be used and the procedure to be adopted. All instructions will be given by ZL6A.

(2) Read each frequency as accurately as possible. To qualify for an award it is essential to read each of the three frequencies.

(3) Post your entry to: Doug Gorman Frequency Measuring Contest, NZART, P.0. Box 40-525, Upper Hutt.

(4) Entries should be sent within seven (7) days, together with details of equipment used and which section entered (eg, John McKim Cup or Norm Edwards Shield).

(5) Judging

The degree of accuracy will be judged by subtracting your readings from the official reading. The resultants will be averaged to arrive at a final degree of accuracy.

(6) Awards

(a) John McKim Cup for those using simple direct reading type of equipment such as a receiver using a calibrated dial or LED readout to one decimal place, ie 3900.0 kHz. A simple heterodyne type frequency meter (BC221/LM10, etc), whether commercial or homemade.

(b) Norm Edwards Shield for those using "sophisticated" equipment which might include receivers with LED readout to two or more decimal places (ie, 10 Hz or better). Computer, oscilloscopes, audio generators, etc, used singly or in combination, whether commercial or home made.

(c) Branch Award certificate to the branch with the lowest average of the three best competitors. If you wish to support your Branch, state you Branch number and name on your entry form.

(d) Certificates to all those whose average deviation is 200 Hz or better.

If you make readings during this activity, but do not wish to have your results published, please drop us a line so we know how many people were interested.

73 de Neil ZL2TNG and Gavin ZL2ACT

Doug Gorman Memorial Frequency Measuring Contest 2000 Entry Form

Name _____ Call-sign _____

Branch _____

Details of all equipment used:

Make _____ Model _____

Comments _____

Section entered (please tick):

John McKim Cup Norm Edwards Shield Branch Award

Measured Frequencies:

1. _____kHz 2. _____kHz 3. _____kllz

Post entry to: Frequency Measuring Contest, NZART, P0 Box 40~525, Upper Hutt

NZART Memorial Contest

To commemorate those from our ranks who lost their lives in World War 2.

When: First Saturday evening in July. Six operating periods of one hour each from 0800—1400 UTC (8.00 pm to 2 am Sunday NZT).

1. Usual contest rules apply.

2. Single operator stations on the 80 metre band.

3. A station may be contacted twice during each operating period—once on phone and once on CW provided that such contacts are not consecutive.

4. Mobile operation is permitted.

5. **Cypher System:**

Cyphers must be exchanged and acknowledged before points may be claimed for a contact. The cypher will consist of the RS(T) followed by a serial number starting at any number between 001 and 300 for the first contact and incrementing by one for each successive contact. eg if the first number is 599007, the next contact will be 599008 etc.

6. **Scoring:**

Phone

Starting with a maximum of 15 points descending scores will be claimed for each successive contact in any one "scoring area". Every DXCC country will be a "scoring area" and additionally every prefix in New Zealand and Australia (ZL1, ZL2 etc, VK1, VK2 etc) will be scoring areas. For your first contact with any scoring area you will claim 15 points; for the second contact with that same area, 14 points; for the third, 13 points and so on from the 15th contact with that same area you will claim only one point per contact. Prefixes are the basis for scoring, irrespective of the physical location of the station.

CW

As for phone, except that the QSO points will remain at five after and including the eleventh QSO with that scoring area.

7. **Logs**

The official log sheets available from the NZART Business Manager are the preferred log sheets.

Logs must show contacts in correct order of time. Do not group all ZL1, ZL2, ZL3 etc. contacts together.

8. **Summary**

A separate summary sheet must be completed and attached to the log sheets. This must show the following:

(a) Callsign of station and NZART Branch of which a member.

(b) Name and full address of operator.

(c) Section in which competing:

(i) Open phone and CW (Memorial Trophy).

(ii) Open CW only (Auckland CW Cup).

(iii) "Beginners" CW only (Laing-Smith Cup).

Competitors in this section must state the number of their operator" certificate and the date of issue.

(iv) Low power phone and CW (Mannell Trophy).

(v) Home made SSB equipment (Brother John Rodgers Plaque).

(vi) Phone only (Phil Armstrong Plaque).

(vii) Listeners section.

Rules as for the transmitting sections except that only the cypher sent by that station heard should be given. The callsign of the station heard and also of the station being "worked" must be stated.

(vii) Australian section. Rules as for the Open section.

(d) Brief description of equipment used and power output.

(e) Points summary. eg.

PHONE

ZL1 20 contacts = 125 points

ZL2 22 contacts = 127 points

etc

Total 42 contacts = 252 points

CW

ZL1 18 contacts = 145 points

ZL2 20 contacts = 155 points

etc

Total 38 contacts = 300 points

(f) Signed declaration that the contest rules and Radio Regulations have been observed.

9. **Submission**

All logs to be sent to "Memorial Contest Log", Win Gilbert ZL2GI, 146 Liverton Road, Lower Hutt, to arrive no later than four weeks after the contest date. Electronic logs are encouraged—on disk or by e-mail to wgilbert@actrix.gen.nz.

Trophies

Memorial Trophy. Donated by NZART in 1946. To be held for 12 months by the competitor with the highest score. Phone and CW may be used but contacts must be phone to phone or CW to CW. Phone to CW or vice versa is not permitted. A miniature is also awarded with the trophy, becoming the winner's personal property.

Auckland Shortwave Cup. Donated by the Auckland Shortwave Club in 1933 for Morse competitions. To be held for 12 months by the competitor operating CW only, who returns the highest score. Contacts must be CW to CW. Power limit is 150 Watts.

Laing-smith Cup. Donated by Mr. L. E. Laing-Smith ZL1BO in 1958. To be held by the competitor returning the highest CW score who, at the time of the contest, has held an amateur operator's certificate for no longer than 12 months. Contacts must be CW to CW. Power limit is 150 W.

This is to encourage CW operation amongst new hams. To quote ZL1BO "Any method of inducing or encouraging the new hams to use CW until they are at least proficient" has my support.

Mannell Trophy. Donated by Mrs Mannell in memory of her son, who was killed in an aircraft accident while serving with RNZAF. To be held for 12 months by the competitor using a power not exceeding 10 Watts who returns the highest score. Phone and CW may be used but contacts must be phone to phone or CW to CW.

Ron Gray Memorial Shield. Presented by Mr. And Mrs. D Gray and Jock White ZL2GX in memory of Ron ZL1304, who was a regular competitor in the Listeners' Section, for the highest SWL score.

Brother John Rodgers Memorial Plaque. Presented by a group who appreciated his contribution to the hobby. For the competitor with the highest score using home made SSB transmitting equipment.

Phil Armstrong Zl1bmc (Vk7mc) Memorial Plaque. To be held on an annual basis by the competitor with the highest score on phone only. All contacts must be phone to phone.

NZART Straight Key Night

Polish and lubricate that old morse key and enjoy an evening of old time radio fun. An activity night in which everyone can be a winner with a certificate to prove it.

When: First Sunday in November 2000–2300 NZST.

Band: 80m (3.5mHz) only

Mode: CW sent with STRAIGHT KEY ie characters formed manually, no system of automatic dots, dashes or spacing permitted.

Divisions: Vintage QRP, Vintage QRO, Open QRP, Open QRO.

Explanation: Vintage: Receiver and transmitter or transceiver using valves, no solid state devices in the signal line permitted. QRP: 5 watts or less rf output.

Exchange: RST/ QTH/ operator's name (one word)/key used (e.g. ZC1, P&T)/ TX type (eg ZC1, FT1000, homebrew)/ TX power (watts). Except for DX stations (ie non ZL mainland) only rst, operators name, and QTH need be exchanged.

Scoring: 1 Point per QSO. Stations may be worked once, cw to cw only. All stations submitting logs MUST use a straight key throughout, but straight key stations may QSO stations using bugs, electronic keyers or keyboards.

Multipliers: Vintage QRP multiply total points x2, Open QRP multiply x 1.5, Vintage QRO x 1.2, Open QRO x1.

Logs: Suggest using standard NZART log pages (not contest log sheets). Each log QSO entry to show: Time (NZST or Z), callsign, RST, QTH, name, key type, tx type, tx power (of station worked).

Calculate total score, mutiply to give total score claimed.

Logs to have associated data sheet giving entrant's: name, callsign, QTH, age (optional), full description of equipment used ie key, tx/rx, tx power, antenna.

Send logs by email, mail, fax, ON OR BEFORE 20 NOVEMBER to: Barry Kirkwood ZL1DD, 66 Cory Rd, Palm Beach, Waiheke Island 1240, Ph/fax 09 372 5161. email: bjk@ihug.co.nz

All (including DX stations) who send a log will receive a certificate. Special certificates to top three in each division. Annotated certificates e.g. Best ZC1, Youngest/oldest op, etc., at manager's discretion.

Any photos of operators and/or equipment gratefully received.

Waitakere Sprints—2001

The Western Suburbs Radio Club is pleased to announce that the Waitakere Phone Sprint will be held on the last Saturday in July and the CW Sprint will be on the first Saturday in August.

The contests are of one-hour duration on 80m, and are open to all licensed amateurs in ZL, VK and Oceania call areas.

Object of the Sprints

The operator's basic goal in the sprints is to make as many contacts as possible, without duplication, during an hour of operation on a single band. Any contact with ZL, VK or Oceania stations on 80 during the contest period can be counted, but a station may be claimed only once.

Eligibility

The Waitakere Sprints are open to all licensed amateurs anywhere in the ZL, VK and Oceania call areas. SWL logs will also be welcome.

Contest Periods

Phone 1000 to 1100 UTC, on last Saturday in July

CW 1000 to 1100 UTC, on 1st Saturday in August

Frequencies

Phone: 3.550 to 3.700 may be used.

CW: 3.500 to 3.550 may be used.

Power

In fairness and consideration to others we request that NO LINEAR AMPLIFIERS be used in the contest

Contest call

CQ Sprint, CQ Test or CQ Contest.

Exchanges

Minimum exchange for a valid contact will consist of a serial number, sent and received. The serial numbers must start at 001 and increment by one for each contact made.

Note : Time and signal reports are no longer required.

Awards

Certificates will be awarded to the overall winner and to the best score in each ZL call area and to the best three scores from VK/Oceania. Other certificates may be awarded at the discretion of W.S.R.C.

Special Awards

To encourage contestants to enter both Sprints we have decided to issue a Special Certificate to the entrant with the Highest combined score. The method of calculation will be :

(Phone points + CW Points) x 2.

All logs received will be considered for this award. To qualify for the multiplied points each log must contain a minimum number of valid contacts.

ie. Ten (10) for Phone, and Five (5) for CW.

Logs

A separate log must be submitted for each Sprint and must be clearly marked PHONE or CW.

Contest logs must show for each contact: Callsign of station worked, serial number sent, serial number received.

SWL logs must show both Callsigns in the QSO also both serial numbers.

Logs may be sent by Packet Radio please use three columns only with no commas or other delimiters. Any logs received by packet will be acknowledged by the same medium.

Logs are to be in the hands of the contest manager, ZL1BVK. Alex.Learmond, 14 Takapu Street Henderson Auckland 1208.

Packet to ZL1BVK @ ZL1AB.

Email zl1bvk@xtra.co.nz no later than 1st September 2001

Operator Information

Each log must show the following details.

Mode

Callsign

Name

Address

Operating area (Eg. ZL1,ZL2)

Total Number of contacts claimed

A declaration that the operator has abided by the rules and spirit of the contest.

Any entry which is clearly in violation of the rules or spirit of this contest or which contains an excessive number of duplicate contacts (this does not refer to duplicates which have been indicated as such and are not claimed) may be disqualified. The decision of WSRC Inc. In respect of interpretation of these rules, the granting of awards and disqualifications will be final and no correspondence will be entered into.

Note that the Dual Operator section introduced for the year 2000 was dropped for lack of support.

Alex H. Learmond ZL1BVK
Contest Manager WSRC

NZART Amateur Radio Bookshop

(Effective August 2001)

NZART Publications and Supplies	Price
Amateur Radio Logbook	$7.80
Basic Radio Training Manual, 4th Edition 1994	$18.00
Call Book 2001/2002	$7.00
Call Book Surnames; in alphabetical order 2001/2002	$7.00
Ham Shacks, Brass Pounders & Rag Chewers	$19.95
Log Sheets (per 10)	$1.90
NZART Badge—Call Sign	$9.30
NZART Badge—Life Member of Branch	$13.60
NZART Badge—OTC Blue	$9.70
NZART Badge—Plain	$3.70
Secret Listening	$3.00
"Without Wires" bumper stickers (each)	$0.50
NZART Member Pads (Size A5)	$7.50
NZART Examination Questions Bound copy	$15.00
NZART Examination Study Guide (Floppy Disc)	$5.00
NZART Morse Study Guide (Floppy Disc)	$5.00
Amateur Radio in NZ—The New Rules Explained	$15.00
Additional copies of Break In	$5.00
NZART Ties (Green, Blue, Brown)	$10.00
Great Circle Maps (Edition 1, 1983)	$4.00

Watch this space for the new NZART clothing, to be available soon!

Send your order to The Business Manager, NZART HQ,

PO Box 40 525, Upper Hutt, New Zealand.

Prices include GST plus P&P and are subject to change without notice. Please include full remittance and use the order form on the reverse side of this sheet as evidence of membership.

Non-members: please add 20 per cent to all prices. Overseas members should deduct GST (1/9th) off price.

If undelivered return to NZART, PO Box 40 525, Upper Hutt.

WORLD HF CONTEST CALENDAR

Mode	Contest	Sponsor	Weekend	Times
January				
R	CQ/RJ WW RTTY WPX	CQ Magazine/RTTY	Second full	Saturday 0000–Sunday 2400
CW	HA-DX	MRASZ (Hungary)	Third full	Saturday 0000–Sunday 2400
CW	CQ WW 160	CQ Magazine	Last full	Friday 2200–Sunday 1600
PH	Belgium DX	UBA	Last full	Saturday 1300–Sunday 1300
CW	French DX	REF	Last full	Saturday 0600–Sunday 1800
February				
M	PACC	VERON (Netherlands)	Second	Saturday 1200–Sunday 1200
CW	ARRL-DX	ARRL	Third full	Saturday 0000–Sunday 2400
CW	7 MHz CW	RSGB	Last full	Saturday 1500–Sunday 0900
PH	CQ WW 160	CQ Magazine	Last full	Friday 2200–Sunday 1600
PH	French DX	REF	Last full	Saturday 0600–Sunday 1800
CW	Belgium DX	UBA	Last full	Saturday 1300–Sunday 1300
March				
PH	ARRL-DX	ARRL	First full	Saturday 0000–Sunday 2400
CW	Commonwealth	RSGB	Second full	Saturday 1000–Sunday 1000
R	BARTG	BARTG	Third full	Saturday 0200–Monday 0200
M	Russian DX	RDXC	Third full	Saturday 1200–Sunday 1200
PH	CQ WPX	CQ Magazine	Last full	Saturday 0000–Sunday 2400
April				
PH	SP-DX	PZK (Poland)	First full	Saturday 1500–Sunday 1500
M	YU-DX	Yugoslavia	Third full	Saturday 1200–Sunday 1200
M	Holyland DX Contest	IARC (Israel)	Third full	Saturday 0000–Saturday 2359
M	Helvetia	USKA (Switzerland)	Last full	Saturday 1300–Sunday 1300
May				
M	ARI International DX	ARI (Italy)	First full	Saturday 2000–Sunday 2000
R	VOLTA RTTY	COMO/ARI (italy)	Second full	Saturday 1200–Sunday 1200
M	CQ-M	Krenkel CRC (Russia)	Second full	Saturday 2100–Sunday 2100
CW	CQ WPX	CQ Magazine	Last full	Saturday 0000–Sunday 2400
June				
CW	WW-South America	LABRE (Brazil)	First full	Saturday 0000–Sunday 1600
R	ANARTS Digital Contest	ANARTS (Australia)	Second full	Saturday 0000–Sunday 2400
PH	TOEC WW Grid	TOEC (Sweden)	Second full	Saturday 1200–Sunday 1200
CW	All Asia	JARL (Japan)	Third full	Saturday 0000–Sunday 2400
CW	IV Marconi Memorial	ARI (Italy)	Fourth full	Saturday 1400–Sunday 1400
July				
PH	Venezuelan Independence	RCV	First full	Saturday 0000–Sunday 2400
M	IARU Championships	IARU/ARRL	Second full	Saturday 1200–Sunday 1200
PH	IOTA Contest	RSGB	Last full	Saturday 1200–Sunday 1200
CW	Venezuelan Independence	RCV	Last full	Saturday 0000–Sunday 2400
R	Russian RTTY	Russia	Last full	Saturday 0000–Sunday 2400
August				
CW	WAE-DX	DARC (Germany)	Second full	Saturday 0000–Sunday 2400
R	SARTG WW RTTY	SARTG (Scandinavia)	Second full	Saturday 0000–Sunday 1600*
M	SEANET-DX	SEANET (Thailand)	Third full	Saturday 0000–Sunday 2400
CW	TOEC WW Grid	TOEC (Sweden)	Fourth full	Saturday 1200–Sunday 1200
M	YO-DX	FRR (Romania)	Last w/end	Saturday 1200–Sunday 1200
September				
PH	All Asia	JARL (Japan)	First full	Saturday 0000–Sunday 2400
PH	WAE-DX	DARC (Germany)	Second full	Saturday 0000–Sunday 2400
CW	Scandinavian Activity	Scandinavia	Third full	Saturday 1200–Sunday 1200
PH	Scandinavian Activity	Scandinavia	Fourth full	Saturday 1200–Sunday 1200
R	CQ/RJ WW RTTY	CQ Magazine/RTTY	Last full	Saturday 0000–Sunday 2400
October				
R	PSK31 Rumble	TROY (USA)	First Saturday	Saturday 0000–Saturday 2400
PH	RSGB 21/28 MHz	RSGB	First Sunday	Sunday 0700–Sunday 1900
PH	Oceania Contest	NZART/WIA	First full	Saturday 1000–Sunday 1000
CW	Oceania Contest	NZART/WIA	Second full	Saturday 1000–Sunday 1000
M	Worked ALL Germany	DARC	Third full	Saturday 1500–Sunday 1500
CW	RSGB 21/28 MHz	RSGB	Third Sunday	Sunday 0700–Sunday 1900
PH	CQ World-Wide	CQ Magazine	Last full	
November				
CW	Ukranian DX	Ukraine	First full	Saturday 0000–Sunday 2400
M	OK/OM-DX	Czech Republic	Second full	Sunday 0000–Sunday 2400
R	WAE RTTY	DARC (Germany)	Second full	Sunday 0000–Sunday 2400
CW	LZ-DX	Bulgaria	Third full	Saturday 1200–Sunday 1200
CW	CQ World-Wide	CQ Magazine	Last full	Saturday 0000–Sunday 2400
December				
CW	ARRL 160m	ARRL	First full	Friday 2200–Sunday 1600
M	ARRL 10m	ARRL	Second full	Saturday 0000–Sunday 2400
CW	Croation	HRS	Third full	Saturday 1400–Sunday 1400

Key: M = Multimode; PH = Phone; CW = CW; R = RTTY, * = not continuous. All times are UTC.

Most international contest dates are co-ordinated on a worldwide basis by the IARU, but local events can be influenced by moveable dates such as Easter. It pays to check the rules and dates with the organisers—just to be sure.

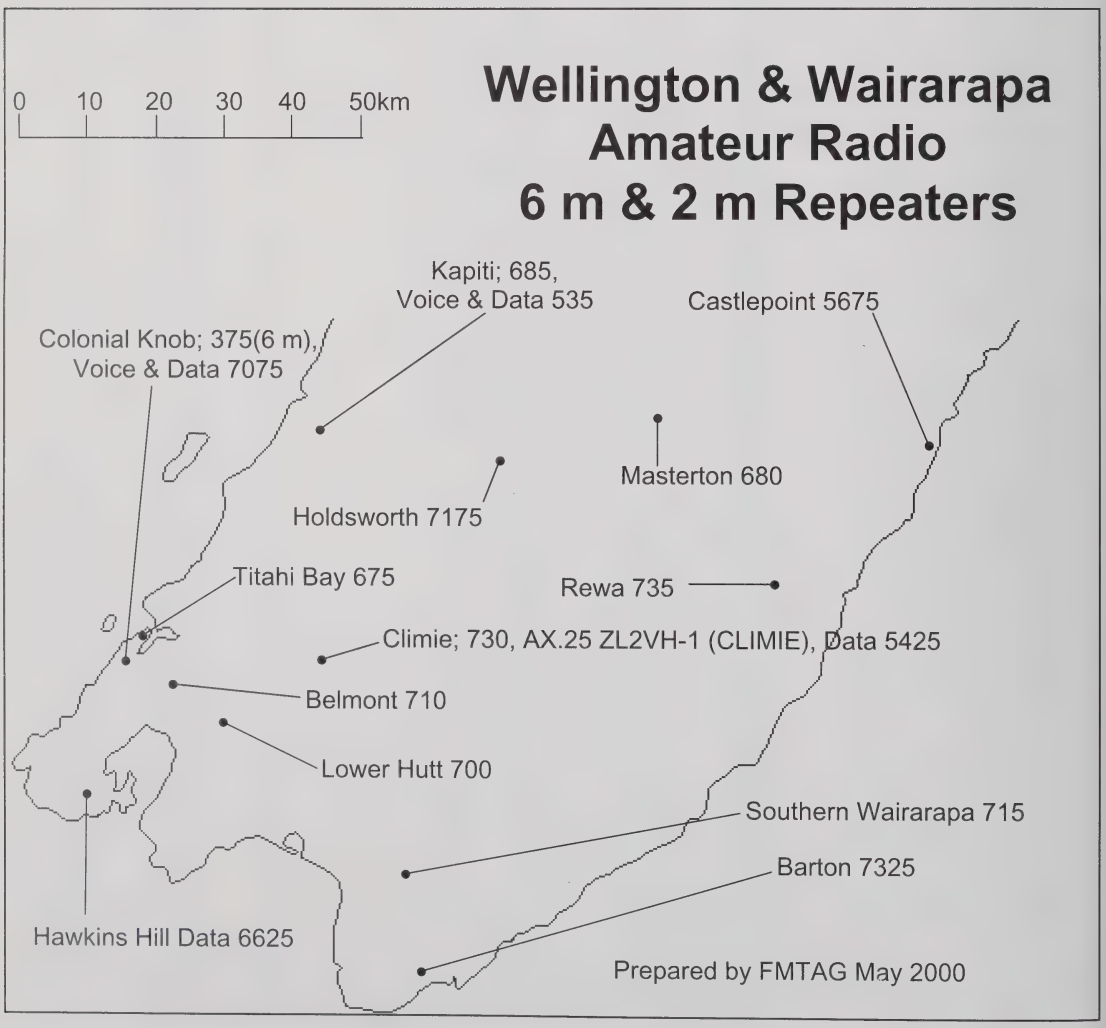
REPEATER AND BEACONS Correct as at 25-06-2002

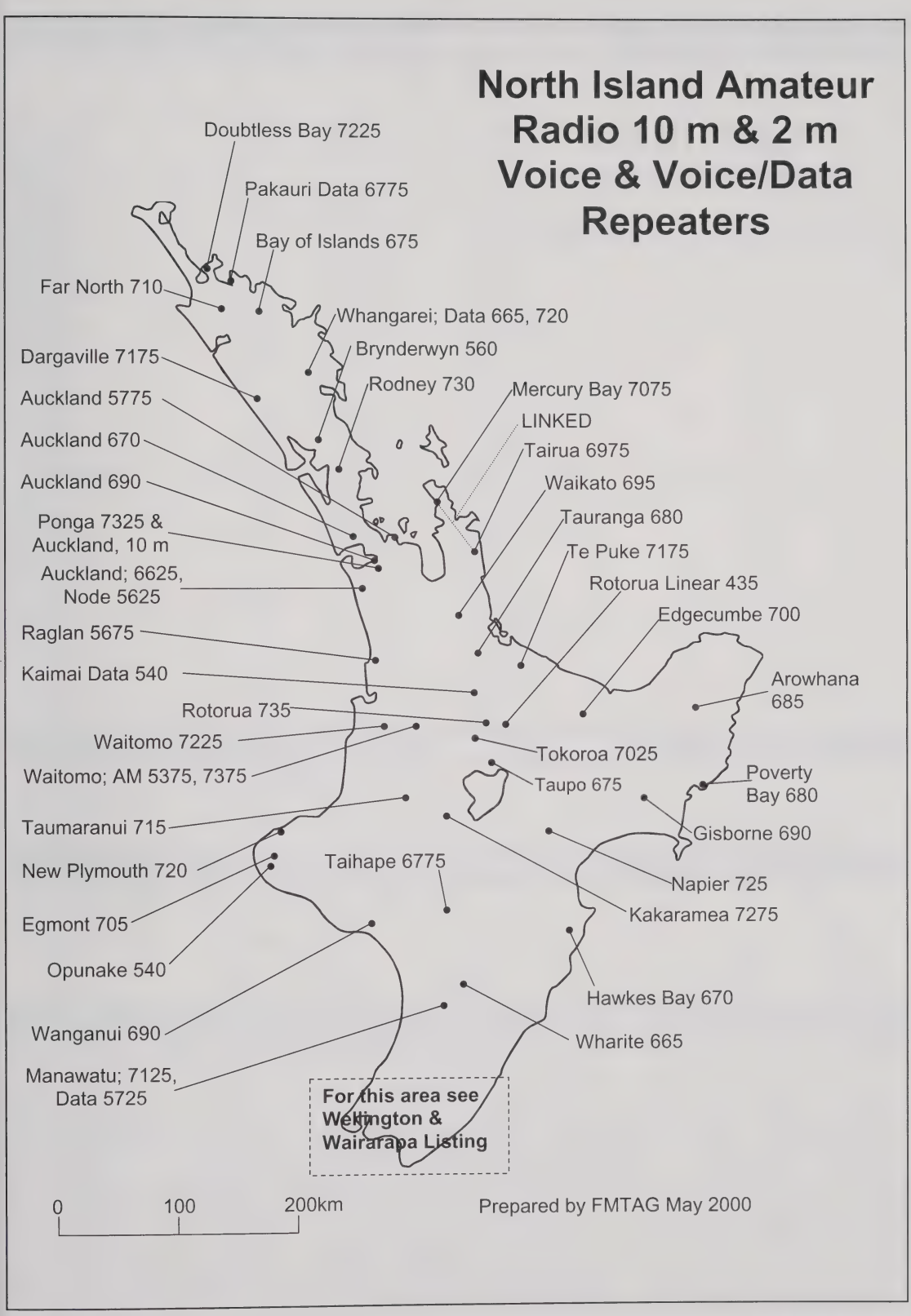
Note on station status. The following stations are operational, or are expected to become operational during the currency of this Call Book.

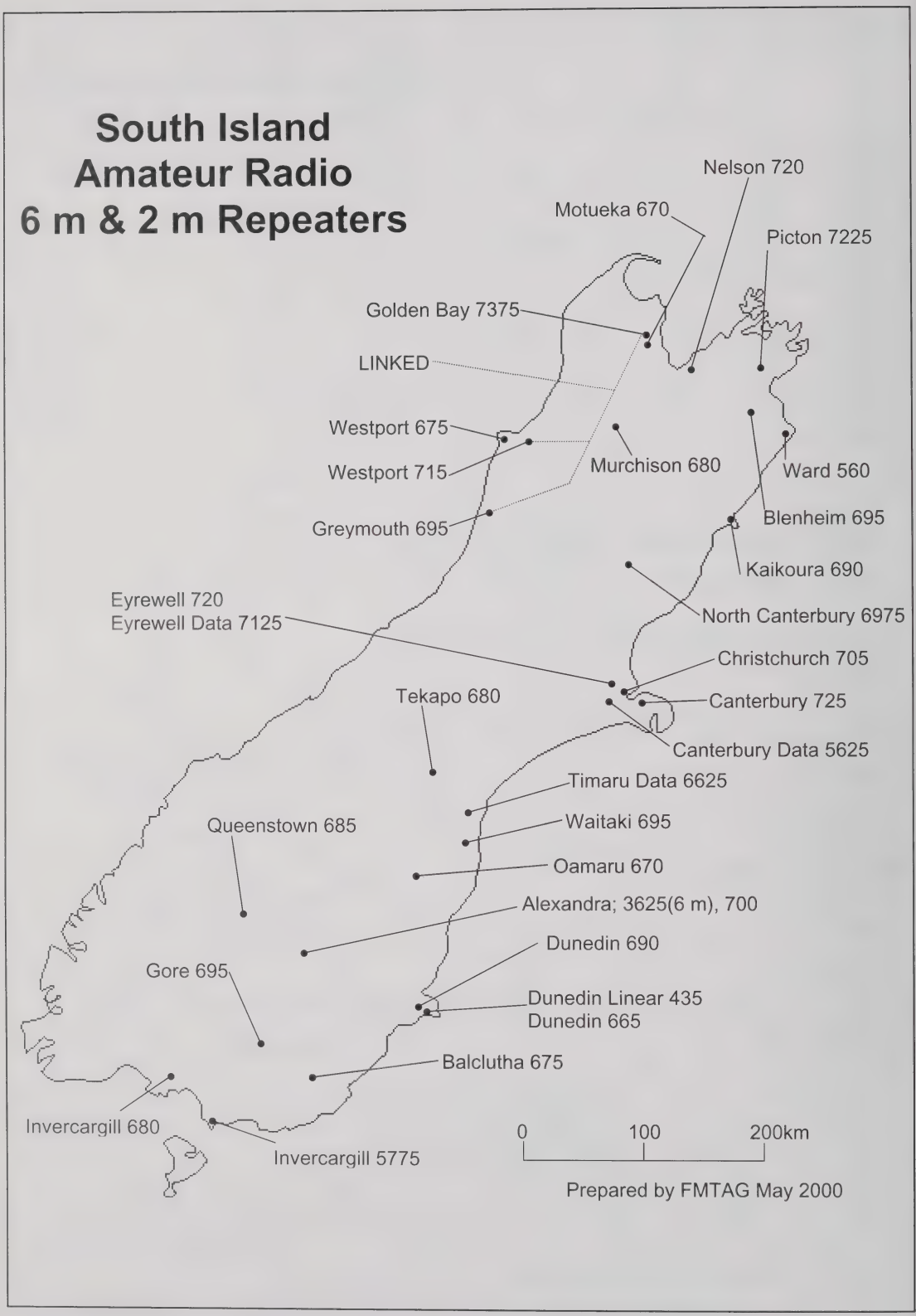
Note on repeater offsets. All repeaters receive low and transmit high, except 7025 to 7375 (2 metres), National System repeaters from 3900 to 4200, and some TV transposers.

Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2
10 m Repeaters						
(User transmits 100 kHz LOWER. Vertical polarisation)						
Auckland 964	29.640	R12 743543	Ponga Hill Papakura	86	ZL1BFB	ZL1TRH
6 m Repeaters						
(User transmits 1 MHz LOWER. Vertical polarisation)						
Alexandra 3625	53.625	G42 141336	Fruitlands	61	ZL4GP	ZL4THT
Auckland 3725	53.725	R13 705259	Port Waikato	66	ZL1QF	ZL3VTV
Colonial Knob 375	53.750	R27 614043	Colonial Knob	74	ZL2BC	ZL2TFZ
Eyrewell 385	53.850	M35 552533	Fire Lookout Tower	CARDS	ZL3MJS	ZL3TMB
2 m Repeaters						
(User transmits 600 kHz LOWER for output frequency 145.325 to 147.000 MHz. User transmits 600 kHz HIGHER for output frequency 147.025 to 147.375 MHz. Vertical polarisation)						
Alexandra 700	147.000	G42 141336	Fruitlands	61	ZL4GP	ZL4THT
Arowhana 685	146.850	Y16 362319	Arowhana	11	ZL2CC	ZL2IMM
Auckland 5775	145.775	R11 800818	Musick Point	86	ZL1BFB	ZL1TRH
Auckland 6625	146.625	R13 705259	Port Waikato	66	ZL1TGC	ZL3VTV
Auckland 670	146.700	Q11 488742	Ruaotewhenua	66	ZL1KB	ZL2ALW
Auckland 690	146.900	R12 890433	Mt Puketutu	66	ZL1ABS	ZL1UET
Balclutha 675	146.750	G46 295350	Kuriwao	35	ZL4TLL	
Barton 7325	147.325	S28 046591	Mt Barton	46	ZL2BFU	ZL2BFY
Bay of Islands 675	146.750	P05 844655	Manginangina	84	ZL2BER	ZL1AVW
Belmont 710	147.100	R27 670014	Belmont	74	ZL2ARW	ZL2TFZ
Blenheim 695	146.950	P28 867510	The Ned	22	ZL2BK	ZL2BAY
Brynderwyn 560	145.600	Q08 383694	Pilbrow Hill	66	ZL1DTE	ZL1TBW
Canterbury 725	147.250	M36 892243	Herbert Peak	05	ZL3ADF	
Castlepoint 5675	145.675	U26 820346	Whakataki	46	ZL2BFY	ZL2UCW
Christchurch 705	147.050	M36 801332	Marleys Hill	05	ZL3ADF	
Climie 730	147.300	R27 898041	Mt Climie	63	ZL2DX	ZL2TNG
Colonial Knob Voice and Data 7075	147.075	R27 614043	Colonial Knob	74	ZL2BC	ZL2TFZ
Dargaville 725	147.250	P07 832043	Tutamoe	73	ZL1TVP	ZL1BAU
Doubtless Bay 7225	147.225	O03 465034	Whatuwhiwhi	78	ZL1BG	ZL1KE
Dunedin 665	146.650	I44 231778	Karetai Road Highcliff	30	ZL4TGR	ZL4TJH
Dunedin 690	146.900	I44 199854	Mt Cargill	30	ZL4TGR	ZL4TJH
Dunedin 435	144.350	I44 200776	Highcliff Road	30	ZL4TGR	ZL4TJH
Edgecumbe 700	147.000	V16 378374	Mt Edgecumbe	51 67	ZL1AIS	ZL1AUS
Egmont 705	147.050	P20 053104	Jackson's Lookout Egmont	54	ZL2AFE	ZL2WJM
Eyrewell 720	147.200	M35 552533	Fire Lookout Tower	CARDS	ZL3MJS	ZL3TMB
Far North 710	147.100	O04 536707	Mt Maungataureia	78	ZL1BG	ZL1FC
Gisborne 690	146.900	X18 095514	Whakapunake	11	ZL2CC N6TNF	
Golden Bay 7375	147.375	N26 983203	Takaka Hill	24	ZL2BCG	ZL3AAA
Gore 695	146.950	F45 898551	McLeods Hill	08	ZL4AO	ZL4GL
Greymouth 695	146.950	K31 736652	Sewell Peak	49	ZL3TY	ZL3ADH
Hawkes Bay 670	146.700	V22 415495	Kahuranaki	13	ZL2AM	ZL2DW
Holdsworth 7175	147.175	S26 137342	Mt Holdsworth	46	ZL2BFU	ZL2BFY
Invercargill 5775	145.775	E47 525895	Bluff Hill	37	ZL40X	ZL4TFJ
Invercargill 680	146.800	D46 109367	Bald Hill Otautau	37	ZL40X	ZL4TFJ
Kaikoura 690	146.900	O31 676646	Kaikoura Peninsula	76	ZL3PZ	ZL3DR
Kakaramea 7275	147.275	T19 435442	Kakaramea	38	ZL1AO	ZL1UTH
Kapiti 685	146.850	R26 875374	Mt Field	69	ZL2GO	ZL2BFI
Kapiti Voice & Data 535	145.350	R26 875374	Mt Field	69	ZL2GO	ZL2BFI
Lower Hutt 700	147.000	R27 742968	Mt Fitzherbert	18	ZL2TFA	ZL2TWS
Manawatu 5725	145.725	T24 418852	Pahiatua Track	20	ZL2AUB	ZL2FX
Manawatu 7125	147.125	T24 418852	Pahiatua Track	20	ZL2AUB	ZL2FX
Masterton 680	146.800	T26 406366	Mt Rangitumau	46	ZL2BFY	ZL2UCW
Mercury Bay 7075	147.075	T11 367772	2.5 km N of Kakatarahae	85	ZL1AAF	ZL1CWN
Motueka 670	146.700	N27 976092	Mt Campbell	24	ZL2BCG	ZL3AAA
Murchison 7025	147.025	M29 683418	Mt Murchison	26	ZL2BCA	ZL2BFW
Napier 725	147.250	V19 333234	Taraponui	25	ZL2DW	ZL2IA
Nelson 720	147.200	O27 461922	Saddle Hill	26	ZL2BCA	ZL2BFW
New Plymouth 720	147.200	P19 990382	Power Station Chimney	27	ZL2BR	ZL2BZH
North Canterbury 6975	146.975	M33 602152	Mt Noble	68	ZL3AI	ZL4TJS
Oamaru 670	146.700	I40 169030	Station Peak	64	ZL4SF	ZL4SN
Opunake 540	145.400	P20 961014	Opunake	32	ZL2ADU	ZL2BQW
Picton 7225	147.225	P27 916894	Mt Freeth	22	ZL2BK	ZL2BAY
Ponga 7325	147.325	R12 886529	Ponga Hill, Papakura	86	ZL1BUP	ZL1TRH
Poverty Bay 680	146.800	Y18 476682	Kaiti Hill Gisborne	11	ZL2CC	ZL2IMM
Queenstown 685	146.850	F41 790626	Double Cone	75	ZL4JW	
Raglan 5675	145.675	R15 826651	Plateau Road	81	ZL1TAT	ZL1THG
Rewa 735	147.350	T26 606122	Mt Rewa	46	ZL2BFU	ZL2UCW
Rodney 730	147.300	R09 595233	Schollum Access Road	71	ZL1MO	ZL2BCB

Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2
Rotorua 735	147.350	U16 004306	Mt Moerangi	33	ZL1UC	ZL1BWC
Rotorua 435	144.350	U16 068393	Whakapoungakau Airstrip	33	ZL1BTB	ZL1PJ
Southern Wairarapa 715	147.150	S28 981738	Long Ridge Farm	82	ZL2LL	
Taihape 6775	146.775	T21 446632	Cleavers Hill	23	ZL2TRY	ZL2JOE
Tairua 6975	146.975	T11 609661	Tairua Lookout	85	ZL1AAF	
Taumarunui 715	147.150	S18 086672	Hikurangi	38	ZL1AO	ZL1UTH
Taupo 675	146.750	U17 736942	Mt Maroanui	60	ZL1BVO	ZL1UTW
Tauranga 680	146.800	U14 856839	Cambridge Road	39	ZL1AFC	ZL1QI
Te Puke 7175	147.175	U15 972630	Shaw Road Trig	53	ZL1ARZ	ZL1RAB
Tekapo 680	146.800	I38 192691	Mt Rollesby	34	ZL3TGR	ZL3UR
Timaru 6625	146.625	J37 559434	Mt Horrible	34	ZL3TGR	ZL3UR
Titahi Bay 675	146.750	R27 654094	Onepoto Reservoir	42	ZL1VD	ZL2AEL
Tokoroa 7025	147.025	T16 630103	5 km Nth Whakamaru	57	ZL1TDV	ZL1UGH
Waikato 695	146.950	T13 526039	Mt Te Aroha	81	ZL1TAT	ZL1THG
Waitaki 695	146.950	J40 452147	Mt Studholme	34	ZL3TGR	ZL3UR
Waitomo 7225	147.225	R16 846159	Waipuna Road	55	ZL4SQ	ZL1HJ
Waitomo 7375	147.375	S16 214123	Rangitoto Range	55	ZL1BZ	ZL1HJ
Waitomo AM 5375	145.375	S16 214123	Rangitoto Range	81	ZL1TAT	ZL1THG
Wanganui 690	146.900	S21 064641	Maewa Bench Mark	48	ZL2BGE	ZL2TDI
Ward 560	145.600	P29 072281	Weld Cone	22	ZL2BK	ZL2BAY
Westport 675	146.750	K29 824386	Cape Foulwind Lighthouse	62	ZL3VC	ZL3TKC
Westport 715	147.150	L29 140441	Mt Frederick	62	ZL3VC	ZL3TKC
Whakatane 730	147.300	W15 629502	3 km SE Whakatane	51	ZL1AUS	ZL1CDN
Whangarei 720	147.200	Q07 318089	Parahaki	28	ZL1DTE	ZL1DAC
Wharite 665	146.650	T23 530018	Wharite	06	ZL1AFZ	ZL2VL




North Island Amateur Radio 10 m & 2 m Voice & Voice/Data Repeaters
Doubtless Bay 7225
Pakauri Data 6775
Bay of Islands 675
Far North 710
Whangarei; Data 665, 720
Brynderwyn 560
Dargaville 7175
Rodney 730
Mercury Bay 7075
Auckland 5775
LINKED
Auckland 670
Tairua 6975
Auckland 690
Waikato 695
Ponga 7325 & Auckland, 10 m
Tauranga 680
Te Puke 7175
Auckland; 6625, Node 5625
Rotorua Linear 435
Edgecumbe 700
Raglan 5675
Kaimai Data 540
Arowhana 685
Rotorua 735
Waitomo 7225
Tokoroa 7025
Waitomo; AM 5375, 7375
Taupo 675
Poverty Bay 680
Taumaranui 715
Gisborne 690
New Plymouth 720
Taihape 6775
Napier 725
Kakaramea 7275
Egmont 705
Opunake 540
Hawkes Bay 670
Wanganui 690
Wharite 665
Manawatu; 7125, Data 5725
For this area see Wellington & Wairarapa Listing
0
100
200km
Prepared by FMTAG May 2000


South Island
Amateur Radio
6 m & 2 m Repeaters
Nelson 720
Motueka 670
Picton 7225
Golden Bay 7375
LINKED
Westport 675
Westport 715
Murchison 680
Ward 560
Blenheim 695
Greymouth 695
Kaikoura 690
Eyrewell 720
Eyrewell Data 7125
North Canterbury 6975
Christchurch 705
Tekapo 680
Canterbury 725
Canterbury Data 5625
Timaru Data 6625
Queenstown 685
Waitaki 695
Oamaru 670
Alexandra; 3625(6 m), 700
Dunedin 690
Gore 695
Dunedin Linear 435
Dunedin 665
Balclutha 675
Invercargill 680
Invercargill 5775
0
100
200km
Prepared by FMTAG May 2000

70 cm REPEATERS

(User transmits 5 MHz LOWER. Vertical polarisation. National System 70 cm repeaters are listed on another page)

Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2
Auckland 845	438.450	R13 705259	Port Waikato	66	ZL1TGC	ZL3VTV
Auckland 850	438.500	R11 677815	Auckland City	66	ZL1ABS	ZL1UET
Belmont 925	439.250	R27 670014	Belmont	74	ZL2ARW	ZL2TFZ
Blenheim 845	438.450	P28 884780	Tuamarina	22	ZL2BK	ZL2BAY
Cass Peak 850	438.500	M36 793309	Cass Peak	56	ZL3AZ	ZL3ACS
Colonial Knob 975	439.750	R27 614043	Colonial Knob	74	ZL2BC	ZL2TFZ
Dunedin 915	439.150	I44 199854	Mt Cargill	30	ZL4TGR	ZL4TJH
Egmont 880	438.800	P20 053104	Jackson's Lookout Egmont	54	ZL2AFE	ZL2WJM
Eyrewell 840	438.400	M35 552533	Fire Lookout Tower	CARDS	ZL3MJS	ZL3TMB
Gisborne 950	439.500	X18 197644	Tahunui	11	ZL2CC	ZL2IMM
Greymouth 8575	438.575	K31 736652	Sewell Peak	49	ZL3TY	ZL3ADH
Hawkes Bay 870	438.700	V21 448603	Te Mata Peak	25 13	ZL2DW	ZL2BDQ
Hunua 860	438.600	S12 909538	Hunua, Auckland	AREC	ZL1BNQ	ZL1AVR
Invercargill 870	438.700	E46 523116	Civic Building Esk St.	37	ZL40X	ZL4TFJ
Invercargill 890	438.900	E46 528108	Branch 37 Clubrooms	ZL40X	ZL4TFJ	
Kapiti 885	438.850	R26 875374	Mt Field	69	ZL2GO	ZL2BFI
Lower Hutt 8425	438.425	R27 710976	Birch Street, Lower Hutt	18	ZL2TFA	ZL2TWS
Manawatu 8525	438.525	T24 418852	Pahiatua Track	20	ZL2AUB	ZL2FX
Manurewa 8575	438.575	R11 805664	Redoubt Rd. Manukau	86	ZL1BFB	ZL1UET
Mount Victoria 850	438.500	R27 605886	Mt Victoria	74	ZL3TCE	ZL2TAR
Mount Victoria 950	439.500	R27 605886	Mt Victoria	74	ZL3TCE	ZL2TAR
Nelson 890	438.900	O27 366886	Fringed Hill	26	ZL2BCA	ZL2BFW
New Plymouth 8475	438.475	P19 995239	Carrington Road	27	ZL2BR	ZL2BZH
North Canterbury 870	438.700	M33 602152	Mt Noble	68	ZL3AI	ZL4TJS
Oamaru 865	438.650	J41 495667	Oamaru	64	ZL4SF	ZL4SN
Ponga 825	438.250	R12 886529	Ponga Hill, Papakura	86	ZL1BFB	ZL1TRH
Taihape 865	438.650	T21 446632	Cleavers Hill	23	ZL2TRY	ZL2JOE
Tapuae 8575	438.575	T22 425311	Tapuae	70	ZL2FX	ZL2UKW
Taraponui 8425	438.425	V19 333234	Taraponui	25 13	ZL2IA	ZL2DW
Tauranga 885	438.850	U14 994798	Papamoa	39	ZL1BJP	ZL1QJ
Te Puke 855	438.550	U15 972630	Shaw Road Trig	53	ZL1ARZ	ZL1RAB
Timaru 885	438.850	J37 559434	Mt Horrible	34	ZL3TGR	ZL3UR
Tokoroa 865	438.650	T16 630103	5 km Nth of Whakamaru	57	ZL1TDV	ZL1UGH
Upper Hutt 9625	439.625	R27 844070	Park Street Upper Hutt	63	ZL2DX	ZL2TNG
Waikato 840	438.400	T13 526039	Mt Te Aroha	81	ZL1TAT	ZL1THG
Waitomo 870	438.700	S16 214123	Rangitoto Range	55	ZL1BZ	ZL1HJ
Westport 855	438.550	L29 140441	Mt Frederick	62	ZL3VC	ZL3TKC
Whangarei 870	438.700	Q07 318089	Parahaki	28	ZL1DTE	ZL1DAC
Wharite Voice & Data 9225	439.225	T23 528015	Wharite	06	ZL1AFZ	ZL2TUV

32 cm REPEATERS

(Receive offset: –7.6 MHz user transmits LOW. Vertical polarisation)

Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee1	Trustee2
Belmont 880	928.800	R27 670014	Belmont	74	ZL2TRV	ZL2TAR

23 cm REPEATERS

(Receive offset: –20 MHz user transmits LOW. Vertical polarisation)

Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2
Colonial Knob 150	1291.500	R27 614043	Colonial Knob	74	ZL2TAR	ZL2TFZ
Mount Victoria 120	1291.200	R27 605886	Mt Victoria	74	ZL3TCE	ZL2TAR
North Shore 190	1291.900	R10 675993	Torbay	66	ZL1ABS	ZL1OVY

BULLETIN BOARD REPEATERS

(Simplex Packet Radio BBS stations, Vertical polarisation)

Station Name	Output Callsign	Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2
Gisborne 465 BBS	ZL2AA	144.650		Branch 11 Clubrooms Gisborne	11	ZL2CC	ZL2IMM
Hamilton 465 BBS	ZL1UX	144.650	S14 102773	Hamilton Amateur Radio	12	ZL1PK	ZL4FS
Hamilton 750 BBS	ZL1UX	147.500	S14 102773	Hamilton Amateur Radio	12	ZL1PK	ZL4FS
Hamilton 830 BBS	ZL1UX	438.300	S14 102773	Hamilton Amateur Radio	12	ZL1PK	ZL4FS
Nelson 750 BBS	ZL2SUN	147.500	O27 366886	Fringed Hill	26	ZL2BCA	ZL2BFW
Nelson 465 BBS	ZL2SUN	144.650	O27 366886	Fringed Hill	26	ZL2BCA	ZL2BFW
North Shore 265 BBS	ZL1AB 1200	432.650	R10 659934	Mairangi Bay	29	ZL1BNY	ZL1AUW
North Shore 460 BBS	ZL1AB 1200	144.600	R10 659934	Mairangi Bay	29	ZL1BNY	ZL1AUW
North Shore 830 BBS	ZL1AB 9600	438.300	R10 659934	Mairangi Bay	29	ZL1BNY	ZL1AUW
Christchurch West 465 BBS	ZL3VV-1	144.650	M35 717403	Hornby Clock Tower	56		
Christchurch West 750 BBS	ZL3VV-2	147.500	M35 717403	Hornby Clock Tower	56		
Christchurch West 265 BBS	ZL3VV-3	432.650	M35 717403	Hornby Clock Tower	56		

DIGI-PEATERS

(Simplex store and forward—mostly AX.25, Vertical polarisation)

Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2
Bay of Plenty AX.25 ZL1TP-1	144.625	U14 856839	Cambridge Road	39	ZL1BJP	ZL1AFC
Blenheim AX.25 ZL2KS-1 (BHE)	144.650	P28 026586	Jamie's Knob	22	ZL2TZE	ZL2BJV
Christchurch AX.25 ZL3CHC-1	144.650	M36 801332	Marleys Hill	05	ZL3ADF	
Climie AX.25 ZL2VH-1 (CME)	144.650	R27 898041	Mt Climie	63	ZL2TNG	ZL2DX
Dunedin AX.25 ZL4AA-1 (DUD)	144.650	I44 231778	Karetai Road Highcliff	30	ZL4TGR	ZL4TJH
Gisborne AX.25 ZL2AA-1 (GBD)	144.650	X18 095514	Whakapunake	11	ZL2CC	ZL2IMM
Gore AX.25 ZL4AL-1 (GOR)	144.650	F45 015479	Pukerau Hill	08	ZL4AO	ZL4GL
Greymouth AX.25 ZL3GRY-1 (GRY)	144.650	K31 736655	Sewell Peak	49	ZL3TY	ZL3ADH
Hawkes Bay AX.25 ZL2BQK-1 (NPE)	144.650	V22 415495	Kahuranaki	13 25	ZL2IA	ZL2BDQ
Kaikoura AX.25 ZL3KAI-1 (KAI)	144.650	O31 676646	Kaikoura Peninsula	76	ZL3PZ	ZL3DR
Murchison AX.25 ZL2MUR-1 (MUR)	144.650	M29 683418	Mt Murchison	49	ZL3TY	ZL3ADH
Nelson AX.25 ZL2ARG-1 (NSN)	144.650	N26 173092	Takaka Hill	26	ZL2BCA	ZL2BFW
Queenstown AX.25 ZL4NQ-1 (ZQN)	144.650	F41 790626	Double Cone	75	ZL4JW	
Rangitoto AX.25 ZL1IS-1 (OTO)	144.650	S16 214123	Rangitoto Range	81	ZL1AMW	ZL1UAB
Rodney Digi-link 265	432.650	R09 595233	Schollum Access Road	71	ZL1MO	ZL1BKD
Rodney Digi-link 4675	144.675	R09 595233	Schollum Access Road	71	ZL1MO	ZL1BKD
Tararua AX.25 ZL2IB-1 (PMR)	144.650	T23 528015	Wharite	06	ZL1AFZ	ZL2TUV
Taumarunui AX.25 (TMN)	144.650	S18 015553	Kururau	38	ZL1AO	ZL1UTH
Taupo AX.25 ZL1BCO-1 (TPO)	144.650	U17 736942	Mt Maroanui	60	ZL1BVO	ZL2JE
Timaru AX.25 ZL3UR-1 (MSD)	144.650	J40 452147	Mt Studholme	34	ZL3TGR	ZL3UR
Westport ZL3BRC-1	146.650	L29 140441	Mt Frederick	62	ZL3VC	ZL3TKC

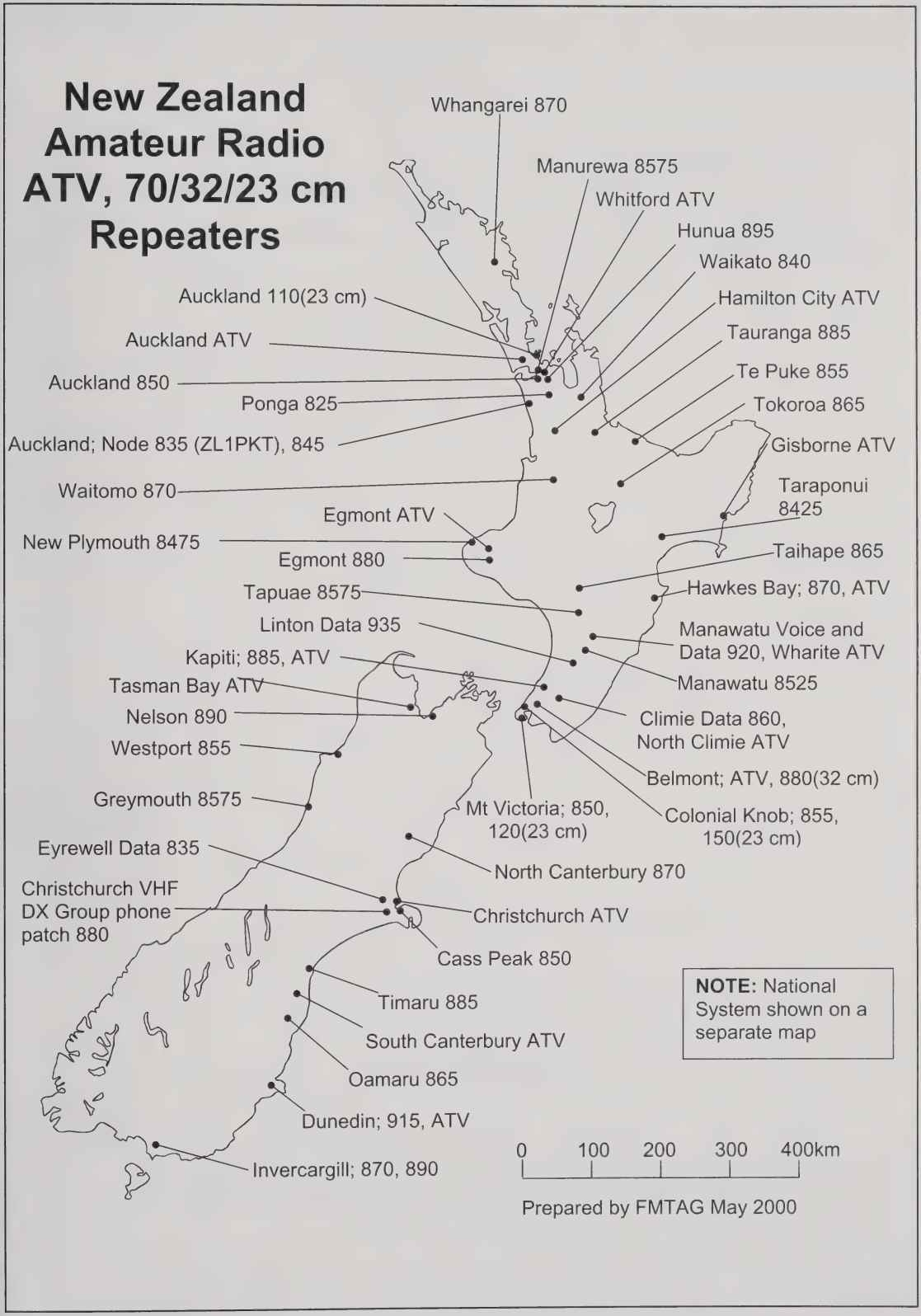
DATA (AND VOICE) REPEATERS

(Duplex, with normal input/output frequency split, Vertical polarisation)

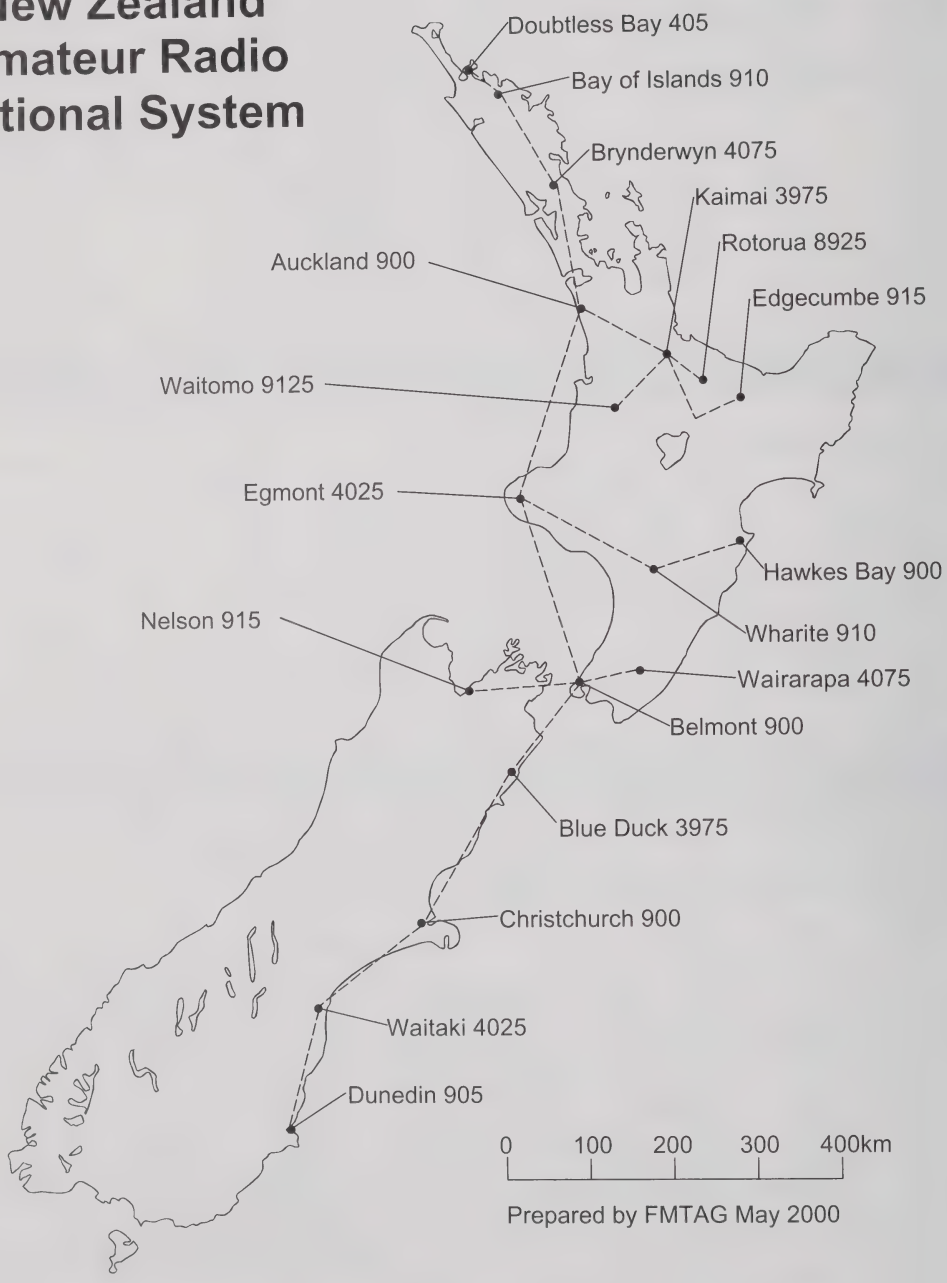
Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2
Auckland Node 5625	145.625	R13 705259	Port Waikato	66	ZL1TGC	ZL2ALW
Auckland Node 835	438.350	R13 705259	Port Waikato	66	ZL1TGC	ZL2ALW
Climie Data 5425	145.425	R27 898041	Mt Climie	63	ZL2TNG	ZL2DX
Climie Data 860	438.600	R27 898041	Mt Climie	63	ZL2TNG	ZL2DX
Colonial Knob Voice & Data 7075	147.075	R27 614043	Colonial Knob	74	ZL2BC	ZL2TFZ
Eyrewell Data 7125	147.125	M35 552533	Fire Lookout Tower	CARDS	ZL3MJS	ZL3TMB
Eyrewell Data 835	438.350	M35 552533	Fire Lookout Tower	CARDS	ZL3MJS	ZL3TMB
Hawkins Hill Data 6625	146.625	R27 550853	Hawkins Hill	74	ZL3TCE	ZL2BC
Kaimai Data 540	145.400	T15 684649	Takaurunga	81	ZL3GR	ZL1UAB
Kapiti Voice & Data 535	145.350	R26 875374	Mt Field	69	ZL2GO	ZL2BFI
Paikauri Data 6775	146.775	O04 674923	Paikauri	78	ZL1OT	ZL1AUI
Whangarei Data 665	146.650	Q06 266150	Parakiore	28	ZL1DTE	ZL1DAC
Wharite Voice & Data 9225	439.225	T23 528015	Wharite	06	ZL1AFZ	ZL2TUV

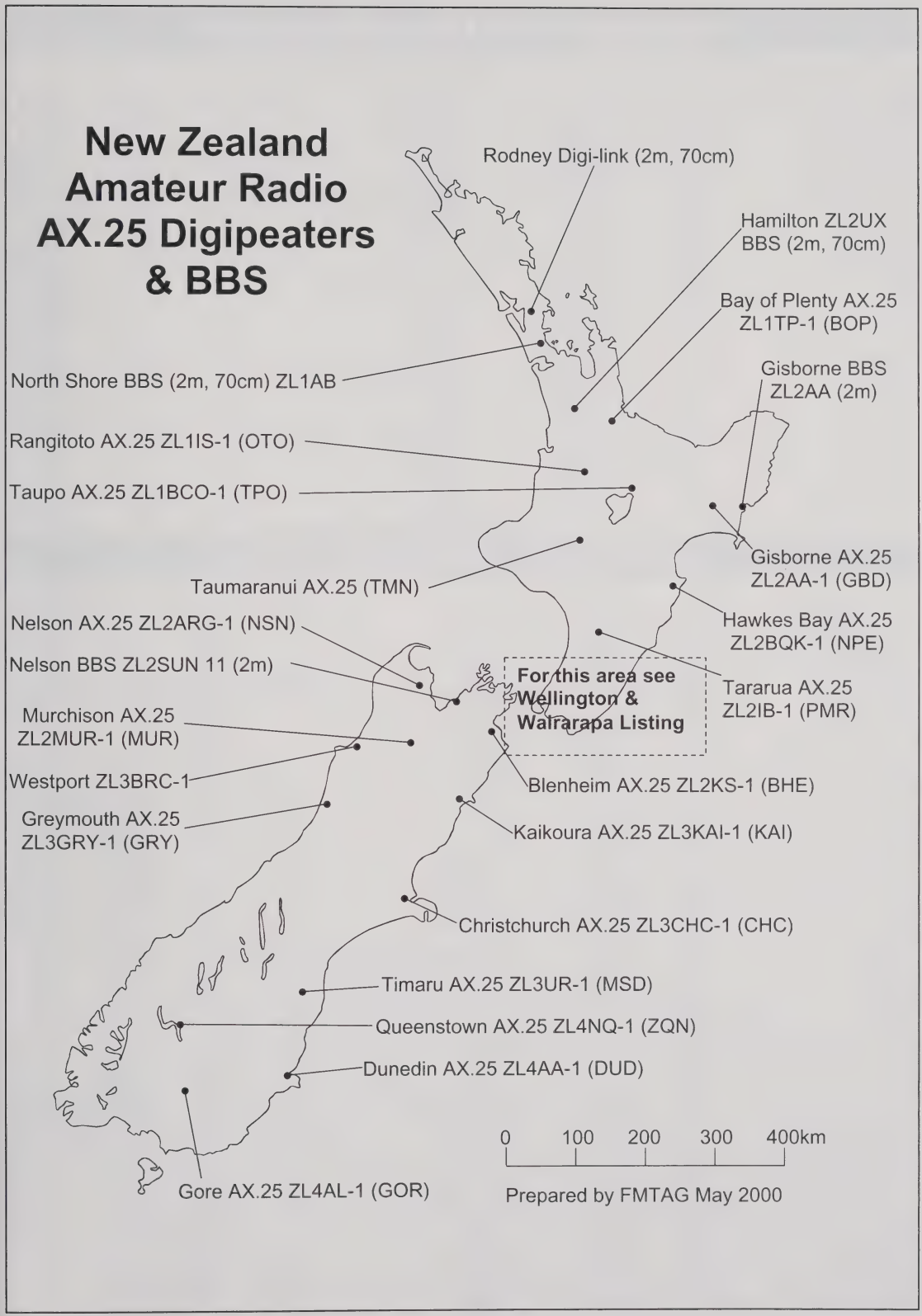
AMATEUR TELEVISION REPEATERS

Station Name	Vision Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2	Linked to
49 cm Repeaters							
In general, these repeaters have an input of 431.250 MHz vision, 436.750 MHz FM sound & 437.100 MHz NICAM sound; some have inputs on 23 cm; input polarisation is horizontal; output polarisation is the same as local UHF broadcasts: H = horizontal, V = vertical.							
49 cm (Channel 39) Repeaters							
Auckland ATV	615.250H	R11 502736	Nihotupu	66	ZL1QF	ZL1KB	Whitford
Belmont ATV	615.250H	R27 670014	Belmont	74	ZL2ARW	ZL2TAR	
Note: Linked to Camborne, Kaiwhara Hill and North Climie transposers							
Christchurch ATV	615.250H	M36 891242	Cashmere Hill	05	ZL3ADF		
Dunedin ATV	615.250H	I44 199854	Mt Cargill	30	ZL4TGR	ZL4TJH	
Egmont ATV	615.250H	P20 036122	Mt Egmont	74	ZL2ARW	ZL2TAR	
Gisborne ATV	615.250H	Y18 476682	Kaiti Hill Gisborne	11	ZL2CC	ZL2IMM	
Hamilton City ATV	615.276H	S14 102774	Hamilton Amateur Radio	12	ZL1UST	ZL1WPK	
Hawkes Bay ATV	615.250V	V21 447602	Te Mata Peak	13 25	ZL2IA	ZL2BDQ	
Kapiti ATV	615.250V	S25 949492	Pukehou	74	ZL2TAR	ZL2TUV	
South Canterbury ATV	615.224V	J40 452147	Mt Studholme	34	ZL3TGR	ZL3HGB	
Tasman Bay ATV	615.250V	N26 983203	Takaka Hill	24	ZL2ASF	ZL2VBO	
Taupo ATV	615.250V	T19 497366	Pihanga	74 60	ZL2TUV	ZL2TAR	
Wairarapa ATV	615.250H	T26 321222	Hood Aerodrome	46	ZL2BFY	ZL2UCW	
Whangarei ATV	615.250V	Q07 318089	Parahaki	28	ZL1DTE	ZL1DAC	
Wharite ATV	615.250V	T23 528015	Wharite	74	ZL2TAR	ZL2TUV	
32 cm Repeaters							
In general, these have 23 cm inputs and are linked to a nearby parent repeater.							
Camborne ATV	922.250H	R26 671112	Camborne	74	ZL2ARW	ZL2TAR	Belmont
23 cm Repeaters							
Kaiwhara Hill ATV	1283.250V	R27 592940	Kaiwhara Hill	74	ZL2HD	ZL2TAR	Belmont
North Climie ATV	1275.250H	S27 901048	North Climie	74	ZL2ARW	ZL2TAR	Belmont
Whitford ATV	1248.000H (FM)	R11 898705	Whitford	66	ZL1QF	ZL1ABS	Auckland


New Zealand Amateur Radio ATV, 70/32/23 cm Repeaters
Whangarei 870
Manurewa 8575
Whitford ATV
Hunua 895
Waikato 840
Hamilton City ATV
Tauranga 885
Te Puke 855
Tokoroa 865
Gisborne ATV
Taraponui 8425
Taihape 865
Hawkes Bay; 870, ATV
Manawatu Voice and Data 920, Wharite ATV
Manawatu 8525
Climie Data 860, North Climie ATV
Belmont; ATV, 880(32 cm)
Colonial Knob; 855, 150(23 cm)
Mt Victoria; 850, 120(23 cm)
North Canterbury 870
Christchurch ATV
Cass Peak 850
Timaru 885
South Canterbury ATV
Oamaru 865
Dunedin; 915, ATV
Invercargill; 870, 890
Auckland 110(23 cm)
Auckland ATV
Auckland 850
Ponga 825
Auckland; Node 835 (ZL1PKT), 845
Waitomo 870
Egmont ATV
New Plymouth 8475
Egmont 880
Tapuae 8575
Linton Data 935
Kapiti; 885, ATV
Tasman Bay ATV
Nelson 890
Westport 855
Greymouth 8575
Eyrewell Data 835
Christchurch VHF DX Group phone patch 880
NOTE: National System shown on a separate map
0 100 200 300 400km
Prepared by FMTAG May 2000

New Zealand Amateur Radio National System




New Zealand
Amateur Radio
AX.25 Digipeaters
& BBS
Rodney Digi-link (2m, 70cm)
Hamilton ZL2UX
BBS (2m, 70cm)
Bay of Plenty AX.25
ZL1TP-1 (BOP)
North Shore BBS (2m, 70cm) ZL1AB
Gisborne BBS
ZL2AA (2m)
Rangitoto AX.25 ZL1IS-1 (OTO)
Taupo AX.25 ZL1BCO-1 (TPO)
Gisborne AX.25
ZL2AA-1 (GBD)
Taumaranui AX.25 (TMN)
Hawkes Bay AX.25
ZL2BQK-1 (NPE)
Nelson AX.25 ZL2ARG-1 (NSN)
Nelson BBS ZL2SUN 11 (2m)
For this area see
Wellington &
Wairarapa Listing
Tararua AX.25
ZL2IB-1 (PMR)
Murchison AX.25
ZL2MUR-1 (MUR)
Westport ZL3BRC-1
Blenheim AX.25 ZL2KS-1 (BHE)
Greymouth AX.25
ZL3GRY-1 (GRY)
Kaikoura AX.25 ZL3KAI-1 (KAI)
Christchurch AX.25 ZL3CHC-1 (CHC)
Timaru AX.25 ZL3UR-1 (MSD)
Queenstown AX.25 ZL4NQ-1 (ZQN)
Dunedin AX.25 ZL4AA-1 (DUD)
0 100 200 300 400km
Gore AX.25 ZL4AL-1 (GOR)
Prepared by FMTAG May 2000

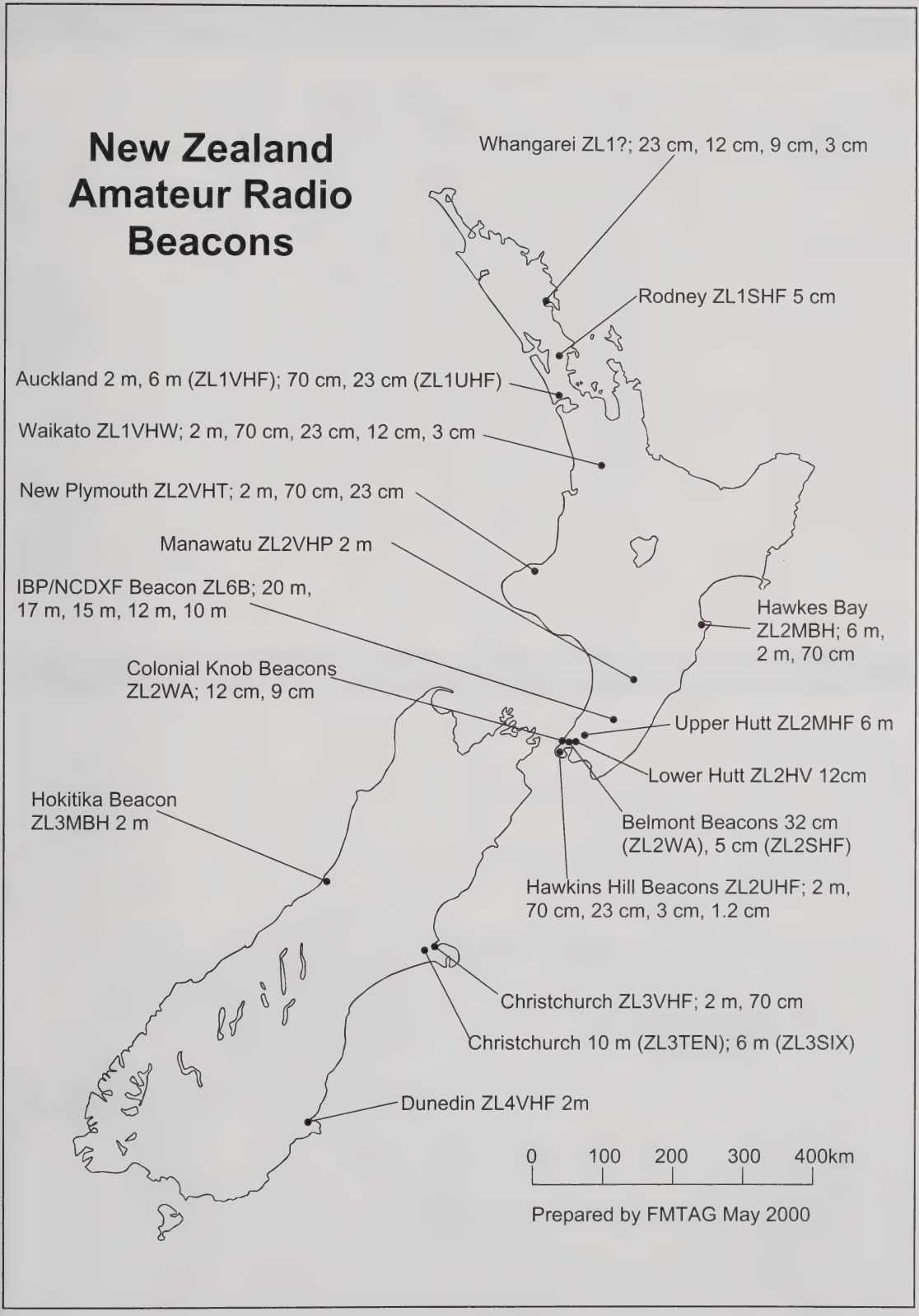
NATIONAL SYSTEM REPEATERS

(Receive offset: –5 MHz for output frequency greater than 438.xxx MHz-user transmits LOW. +5 MHz for output frequency less than 435.xxx MHz-user transmits HIGH. Vertical polarisation)

Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2
Auckland 900	439.000	R13 705259	Port Waikato	66	ZL1TGC	ZL3VTV
Bay of Islands 910	439.100	P05 844655	Manginangina	84	ZL2BER	ZL1AVW
Belmont 900	439.000	R27 670014	Belmont	74	ZL2ARW	ZL2TFZ
Blue Duck 3975	433.975	P31 753892	Blue Duck	74	ZL2BAC	ZL2ARW
Brynderwyn 4075	434.075	Q08 383694	Pilbrow Hill	66	ZL1DTE	ZL1TBW
Christchurch 900	439.000	M36 801332	Marleys Hill	05 74	ZL3ADF	ZL2ARW
Doubtless Bay 405	434.050	O03 465034	Whatuwhiwhi	78	ZL1BG	ZL1KE
Dunedin 905	439.050	I44 199854	Mt Cargill	30	ZL4TGR	ZL4TJH
Edgecumbe 915	439.150	V16 378374	Mt Edgecumbe	67	ZL1AIS	ZL1CAY
Egmont 4025	434.025	P20 036122	Mt Egmont	74	ZL2TFZ	ZL2ARW
Hawkes Bay 900	439.000	V21 447602	Te Mata Peak	25 13	ZL2DW	ZL2IA
Kaimai 3975	433.975	T15 684649	Takaurunga	81	ZL1UAB	ZL3GR
Kapiti 9475	439.475	R26 875374	Mt Field	69	ZL2GO	ZL2BFI
Karapiro 910	439.100	T15 313575	Pukekura	81	ZL1TAT	ZL1THG
Mt Erin 4175	434.175	V22 391557	Mt Erin	25 13	ZL2DW	ZL2IA
Murchison 9275	439.275	M29 683418	Mt Murchison	26	ZL2BCA	ZL2BFW
Nelson 915	439.150	O27 366886	Fringed Hill	26	ZL2BCA	ZL2BFW
Pukehou 935	439.350	S25 949492	Pukehou	74	ZL2TAR	ZL2TUV
Rotorua 8925	438.925	U16 080399	Whakapoungakau	33	ZL1PJ	ZL1BTB
Taupo 895	438.950	T19 497366	Pihanga	74 60	ZL2TUV	ZL2TAR
Wairarapa 4075	434.075	T27 389077	Pariwhariki	74 46	ZL2TFZ	ZL2UCW
Waitaki 4025	434.025	J40 452147	Mt Studholme	34 64	ZL3TGR	ZL3UR
Waitomo 9125	439.125	S16 214123	Rangitoto Range	55	ZL1BZ	ZL1HJ
Wanganui 8825	438.825	R22 869400	Bastia Hill	48	ZL1BNB	ZL2VKD
Whangarei 8825	438.825	Q07 318089	Parahaki	28	ZL1DTE	ZL1DAC
Wharite 910	439.100	T23 528015	Wharite	06 74	ZL1AFZ	ZL2TUV

AMATEUR RADIO BEACONS

Station Name	Output Frequency	Map 260	Map Name	Branch Number	Trustee 1	Trustee 2	Callsign
Auckland 23 cm	1297.150	R11 502736	Nihotupu	66	ZL1QF	ZL1KB	ZL1UHF
Auckland 6 m	50.043	R11 502736	Nihotupu	66	ZL1QF	ZL3VTV	ZL1VHF
Auckland 2 m	144.240	R11 502736	Nihotupu	66	ZL1QF	ZL1KB	ZL1VHF
Auckland 70 cm	432.240	R11 502736	Nihotupu	66	ZL1QF	ZL1KB	ZL1UHF
Auckland 32 cm	925.254	R11 502736	Nihotupu	66	ZL1QF	ZL1KB	ZL1UHF
Belmont 32 cm	925.275	R27 670014	Belmont	74	ZL2ARW	ZL2TAR	ZL2WA
Belmont 5 cm	5760.050	R27 670014	Belmont	74	ZL2ARW	ZL2TFZ	ZL2SHF
Colonial Knob 12 cm	2424.275	R27 614043	Colonial Knob	74	ZL2TAR	ZL2TFZ	ZL2WA
Colonial Knob 9 cm	3456.275	R27 614043	Colonial Knob	74	ZL2TAR	ZL2TFZ	ZL2WA
Dunedin 2 m	145.400	I44 200776	Highcliff Road	30	ZL4TGR	ZL4TJH	ZL4VHF
Eyrewell 70 cm	432.285	M35 552533	Fire Lookout Tower	CARDS	ZL3MJS	ZL3TMB	ZL3CAR
Hawkes Bay 2 m	145.240	V21 454812	Napier City	13 25	ZL2DW	ZL2IA	ZL2MHB
Hawkes Bay 6 m	51.030	V21 454812	Napier City	13 25	ZL2DW	ZL2IA	ZL2MHB
Hawkes Bay 70 cm	433.240	V21 454812	Napier City	13 25	ZL2IA	ZL2BDQ	ZL2MHB
Hawkins Hill 1.2 cm	24150.000	R27 550853	Hawkins Hill	74	ZL3TCE	ZL2ARW	ZL2UHF
Hawkins Hill 2 m	144.275	R27 550853	Hawkins Hill	74	ZL2TAR	ZL2TFZ	ZL2UHF
Hawkins Hill 23 cm	1296.275	R27 550853	Hawkins Hill	74	ZL3TCE	ZL2ARW	ZL2UHF
Hawkins Hill 3 cm	10250.000	R27 550853	Hawkins Hill	74	ZL3TCE	ZL2ARW	ZL2UHF
Hawkins Hill 70 cm	432.275	R27 550853	Hawkins Hill	74	ZL3TCE	ZL2BC	ZL2UHF
Hokitika 2 m	144.286	J33 427300	Hokitika	49	ZL3TY	ZL3ADH	ZL3MHB
IBP;NCDX	14.100	S26 281149	Gladstone Road Carterton	46	ZL2FC	ZL2BHS	ZL6B
IBP;NCDX	18.110	S26 281149	Gladstone Road Carterton	46	ZL2FC	ZL2BHS	ZL6B
IBP;NCDX	21.150	S26 281149	Gladstone Road Carterton	46	ZL2FC	ZL2BHS	ZL6B
IBP;NCDX	24.930	S26 281149	Gladstone Road Carterton	46	ZL2FC	ZL2BHS	ZL6B
IBP;NCDX	28.200	S26 281149	Gladstone Road Carterton	46	ZL2FC	ZL2BHS	ZL6B
Lower Hutt 12 cm	2402.275	R27 710976	Lower Hutt	18	ZL2TFA	ZL2TWS	ZL2HV
Manawatu 2 m	144.271		Branch 20 Clubrooms	20	ZL2FX	ZL2AUB	ZL2VHP
Muriwai 5 cm	5765.000	Q11 392827	Muriwai	74	ZL1TBG	ZL1AVZ	ZL1SHF
New Plymouth 2 m	145.225	Q19 233368	Otaraoa Road	27	ZL2BR	ZL2BZH	ZL2VHT
New Plymouth 23 cm	1297.225	Q19 233368	Otaraoa Road	27	ZL2BR	ZL2BZH	ZL2VHT
New Plymouth 70 cm	433.225	Q19 233368	Otaraoa Road	27	ZL2BR	ZL2BZH	ZL2VHT
Upper Hutt 10 m	28.229	R27 898041	Mt Climie	63	ZL2TNG	ZL2DX	ZL2MHF
Upper Hutt 6 m	52.275	R27 898041	Mt Climie	63	ZL2TNG	ZL2DX	ZL2MHF
Waikato 12 cm	2424.256	R15 835684	Te Uku	81	ZL1TAT	ZL1THG	ZL1VHW
Waikato 2 m	144.256	S14 111765	Hamilton City	81	ZL1TAT	ZL1THG	ZL1VHW
Waikato 23 cm	1296.256	S14 111765	Hamilton City	81	ZL1TAT	ZL1THG	ZL1VHW
Waikato 3 cm	10368.256	R15 835684	Te Uku	81	ZL1TAT	ZL1THG	ZL1VHW
Waikato 70 cm	432.256	S14 111765	Hamilton City	81	ZL1TAT	ZL1THG	ZL1VHW
Whangarei 23 cm	1296.254	Q06 266150	Parakiore	28	ZL1DTE	ZL1DAC	
Whangarei 9 cm	3456.254	Q06 266150	Parakiore	28	ZL1DTE	ZL1DAC	
Whangarei 12 cm	2424.254	Q06 266150	Parakiore	28	ZL1DTE	ZL1DAC	
Whangarei 3 cm	10368.254	Q06 266150	Parakiore	28	ZL1DTE	ZL1DAC	


New Zealand Amateur Radio Beacons
Whangarei ZL1?; 23 cm, 12 cm, 9 cm, 3 cm
Rodney ZL1SHF 5 cm
Auckland 2 m, 6 m (ZL1VHF); 70 cm, 23 cm (ZL1UHF)
Waikato ZL1VHW; 2 m, 70 cm, 23 cm, 12 cm, 3 cm
New Plymouth ZL2VHT; 2 m, 70 cm, 23 cm
Manawatu ZL2VHP 2 m
IBP/NCDXF Beacon ZL6B; 20 m, 17 m, 15 m, 12 m, 10 m
Hawkes Bay ZL2MBH; 6 m, 2 m, 70 cm
Colonial Knob Beacons ZL2WA; 12 cm, 9 cm
Upper Hutt ZL2MHF 6 m
Lower Hutt ZL2HV 12cm
Hokitika Beacon ZL3MBH 2 m
Belmont Beacons 32 cm (ZL2WA), 5 cm (ZL2SHF)
Hawkins Hill Beacons ZL2UHF; 2 m, 70 cm, 23 cm, 3 cm, 1.2 cm
Christchurch ZL3VHF; 2 m, 70 cm
Christchurch 10 m (ZL3TEN); 6 m (ZL3SIX)
Dunedin ZL4VHF 2m
0 100 200 300 400km
Prepared by FMTAG May 2000

SHORT TERM SPECIAL PURPOSE (STSP) REPEATERS

(These are standard FM repeaters used for special events & emergency use)

Station Name	Output Frequency	Branch Number	Trustee 1	Trustee 2	Note
Alexandra STSP 6625	146.625	61	ZL4GP	ZL4THT	
Auckland STSP 6825	146.825	AREC	ZL1BNQ	ZL1AVR	
Auckland STSP 6875	146.875	AREC	ZL1BNQ	ZL1AVR	
Auckland STSP 8625	438.625	AREC	ZL1BNQ	ZL1AVR	
Auckland STSP 8675	438.675	AREC	ZL1BNQ	ZL1AVR	
Auckland STSP 875	438.750	AREC	ZL1BNQ	ZL1AVR	
Auckland STSP 8725	438.725	AREC	ZL1BNQ	ZL1AVR	
Auckland STSP 8775	438.775	AREC	ZL1BNQ	ZL1AVR	
Christchurch STSP 7275	147.275	05	ZL3ADF		
Hamilton STSP 5325	145.325	12	ZL1UD	ZL1UST	
Hamilton STSP 8725	438.725	12	ZL1UD	ZL1UST	
Hawkes Bay STSP 6925	146.925	25 13	ZL1UIO	ZL2DW	
Kapiti STSP 8725	438.725	69	ZL2GO	ZL2BFI	
Manawatu STSP 6825	146.825	20	ZL2AUB	ZL2BOB	
Marlborough STSP 6725	146.725	22	ZL2BK	ZL2BAY	
Masterton STSP 6725	146.725	46	ZL2BFU	ZL2BFY	
Nelson STSP 6925	146.925	26	ZL2BCA	ZL2BFW	
Rotorua STSP 6675	146.675	33	ZL1PJ	ZL1BTB	
South Canterbury STSP 8725	438.725	34	ZL3TGR	ZL3JS	
Tararua STSP 6825	146.825	06	ZL1AFZ	ZL2TUV	
Taumarunui STSP 6725	146.725	38	ZL1AO	ZL1UTH	
Upper Hutt STSP 6675	146.675	63	ZL2TNG	ZL2DX	
Wellington STSP 6875	146.875	74	ZL2TFZ	ZL2ARW	
Wellington STSP 8675	438.675	74	ZL2TFZ	ZL2ARW	
Wellington STSP 8775	438.775	74	ZL2TUV	ZL2TAR	
Whakatane STSP 6825	146.825	51	ZL1AUS	ZL1CDN	

SIMPLEX AND CALLING FREQUENCIES

144.100 Oceania SSB Calling
144.200 NZ SSB Calling
144.500 FM Calling
144.575 Data Simplex and APRS
144.600 Primary data/packet port-linked to Digital National System
144.625 Secondary data/packet port-linked to Digital National System
144.650 Primary Local Data/Packet Store/Forward
144.675 Secondary Local Data/Packet Store/Forward
145.250 Narrow band picture modes: FAX, Hellschriber, SSTV, etc.
146.425 to 146.600 FM Simplex
147.400 to 147.600 FM Simplex
147.500 Tertiary Local Data/Packet Store/Forward

432.200 SSB Calling
432.500 FM Calling
432.575 Data Simplex and APRS
432.600 Primary data/packet port-linked to Digital National System
432.625 Secondary data/packet port-linked to Digital National System
432.650 Primary Local Data/packet Store/Forward
432.675 Secondary Local Data/Packet Store/Forward
438.300 Tertiary Local Data/packet Store/Forward

Above 144 MHz, use the following as a guide to designated frequencies:
F to F+1 MHz for standard narrow band or weak signal segment, where F = 144, 432, 621, 925, 1296, 2424, 5760, 10368, 24192, 47088, 80640 MHz.

F+0.200 SSB calling
F+0.250 to 0.300 Beacons (geographic plan—1 kHz spacing)
F+0.500 FM calling
F+0.575 Data Simplex and APRS
F+0.600 Primary data/packet port-linked to Digital National System
F+0.625 Secondary data/packet port-linked to Digital National System
F+0.650 Primary local data/packet
F+0.675 Secondary local data/packet

There may be additional designated frequencies in this segment in some bands.
Prepared by FMTAG

NCDXF/IARU INTERNATIONAL BEACON NETWORK

The Foundation, in cooperation with the IARU, maintains a network of beacon stations which operate sequentially on five bands. The 10 dB power steps are precise and are useful for "S" meter calibration and for judging band conditions. The entire system was designed and built by Foundation volunteers at no cost except for the actual price of hardware components.

The actual starting time of each transmission is approximately twenty milliseconds after the nominal time due to the keying delay of the transmitter. Equipment used at each beacon site includes a Kenwood TS-50S transmitter, a Cushcraft R-5 vertical antenna, a Trimble Navigation Acutime™ GPS receiver, and a controller built by the NCDXF. For more information, see The NCDXF/ IARU International Beacon Network by John G. Troster and Robert S. Fabry, QST, October 1994 pp 31–33 and November 1994 pp 49–51, or contact the Northern California DX Foundation, Post Office Box 2368, Stanford, CA 94309-2368, USA.

For the latest information see the NCFDX web site at: http://www.ncdxf.org/beacon.htm

Prepared by FMTAG May 2000

Table 1. NCDXF/IARU Beacon Transmission Schedule

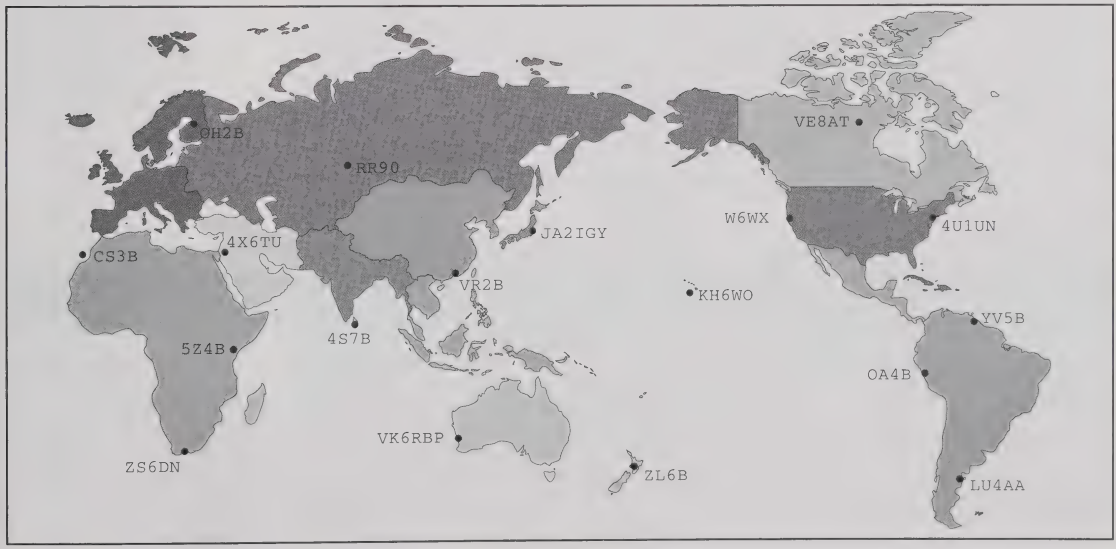
As at 1 April 2000

This table gives the minute and second within each hour of the start of the first transmission of each of beacon on each frequency. Each transmission is repeated every three minutes. A transmission consists of the callsign of the beacon sent at 22 words per minute followed by four one-second dashes. The callsign and the first dash are sent at 100 watts. The remaining dashes are sent at 10 watts, 1 watt and 0.1 watts.

Slot	Country	Call	14.100	18.110	21.150	24.930	28.200	Operator	Status
1	United Nations	4U1UN	00:00	00:10	00:20	00:30	00:40	UNRC	OK
2	Canada	VE8AT	00:10	00:20	00:30	00:40	00:50	RAC	OK
3	United States	W6WX	00:20	00:30	00:40	00:50	01:00	NCDXF	No output on 18 or 24 MHz
4	Hawaii	KH6WO	00:30	00:40	00:50	01:00	01:10	NOARG, HARC	Sometimes garbled
5	New Zealand	ZL6B	00:40	00:50	01:00	01:10	01:20	NZART	OK
6	Australia	VK6RBP	00:50	01:00	01:10	01:20	01:30	WIA	OK
7	Japan	JA2IGY	01:00	01:10	01:20	01:30	01:40	JARL	Sometimes garbled
8	Russia	RR9O	01:10	01:20	01:30	01:40	01:50	SRR	OK
9	China	VR2B	01:20	01:30	01:40	01:50	02:00	CRSA, HARTS	Intermittent
10	Sri Lanka	4S7B	01:30	01:40	01:50	02:00	02:10	RSSL	OK
11	South Africa	ZS6DN	01:40	01:50	02:00	02:10	02:20	ZS6DN	OK
12	Kenya	5Z4B	01:50	02:00	02:10	02:20	02:30	RSK	OK
13	Israel	4X6TU	02:00	02:10	02:20	02:30	02:40	U Tel Aviv	Intermittent
14	Finland	OH2B	02:10	02:20	02:30	02:40	02:50	U Helsinki	OK
15	Madeira	CS3B	02:20	02:30	02:40	02:50	00:00	ARRM	Sometimes garbled
16	Argentina	LU4AA	02:30	02:40	02:50	00:00	00:10	RCA	OK
17	Peru	OA4B	02:40	02:50	00:00	00:10	00:20	RCP	Weak on 21 MHz
18	Venezuela	YV5B	02:50	00:00	00:10	00:20	00:30	RCV	OK

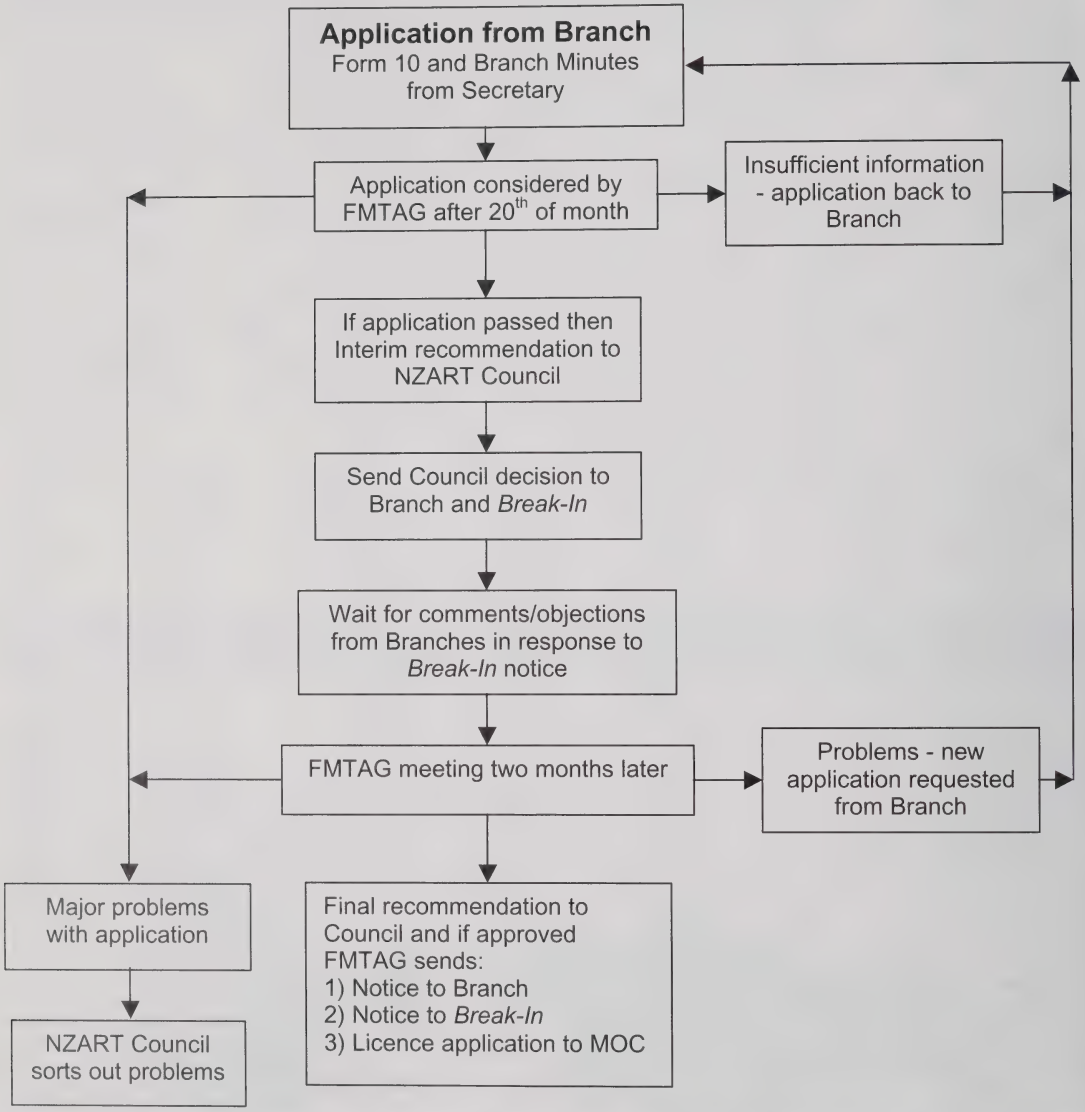
Table 2. NCDXF/IARU Beacon Locations

Slot	Country	Call	Location	Latitude	Longitude
1	United Nations	4U1UN	New York City	40° 45' N	73° 58' W
2	Canada	VE8AT	Eureka, Nunavut	79° 59' N	85° 57' W
3	United States	W6WX	Mt. Umunhum	37° 09' N	121° 54' W
4	Hawaii	KH6WO	Laise	21° 38' N	157° 55' W
5	New Zealand	ZL6B	Masterson	41° 03' S	175° 36' E
6	Australia	VK6RBP	Rolystone	32° 06' S	116° 03' E
7	Japan	JA2IGY	Mt. Asama	34° 29' N	136° 47' E
8	Russia	RR90	Novosibirsk	54° 59' N	82° 54' E
9	China	VR2B	Hong Kong	22° 16' N	114° 11' E
10	Sri Lanka	4S7B	Colombo	6° 54' N	79° 52' E
11	South Africa	ZS6DN	Pretoria	25° 54' S	28° 16' E
12	Kenya	5Z4B	Kilifi	3° 37' S	39° 50' E
13	Israel	4X6TU	Tel Aviv	32° 06' N	34° 48' E
14	Finland	OH2B	Espoo	60° 11' N	24° 50' E
15	Madeira	CS3B	Santo da Serra	32° 43' N	16° 48' W
16	Argentina	LU4AA	Buenos Aires	34° 37' S	58° 21' W
17	Peru	OA4B	Lima (temporary)	12° 04' S	76° 57' W
18	Venezuela	YV5B	Caracas	10° 25' N	66° 51' W



FMTAG PROCEDURE

FMTAG Procedure - May 2000


Application from Branch
Form 10 and Branch Minutes from Secretary
Application considered by FMTAG after 20th of month
Insufficient information - application back to Branch
If application passed then Interim recommendation to NZART Council
Send Council decision to Branch and *Break-In*
Wait for comments/objections from Branches in response to *Break-In* notice
FMTAG meeting two months later
Problems - new application requested from Branch
Major problems with application
NZART Council sorts out problems
Final recommendation to Council and if approved FMTAG sends:
1) Notice to Branch
2) Notice to *Break-In*
3) Licence application to MOC

FREQUENCY MANAGEMENT TECHNICAL ADVISORY GROUP (FMTAG)

FMTAG consists of:

Chairperson, Secretary and others as appointed by NZART Council

The purpose and actions of the FMTAG are:

- Study and report to Council on matters affecting amateur radio frequencies.
- Plan future use of amateur bands
- Select frequencies for Amateur Fixed Stations
- Maintain a register of Amateur Fixed Stations
- Assists in preparing drafts for Council including submissions when needed, to the Ministry of Economic Development (Radio Spectrum Division) on behalf of the Amateur Service prior to each major ITU meeting or conference
- Bandplans are developed by the FMTAG based on IARU recommendations, local requirements, and submitted to NZART Council for approval

Application Forms for repeaters and beacons can be obtained from a NZART Councillor, NZART HQ or email your request to fmtag@nzart.org.nz.

Prepared by FMTAG MAY 2000

TIME AND FREQUENCY

by
A. C. CORNEY
ZL2BBJ

Review of Timekeeping in New Zealand

Timekeeping began in New Zealand in 1862, when Captain Stephen Carkeek, Controller of Customs, recommended to the Superintendent of Wellington Province that a transit instrument, an astronomical clock, and a time ball be placed in the new Custom House which was to be erected on what eventually became the site of the General Post Office.

A transit instrument allows mean local time to be calculated. This is the time appropriate to the longitude of the point of measurement, relative to the Greenwich Meridian, allowing four minutes per degree of longitude, or one hour per 15 degrees. It was not until 1868 that the General Government proclaimed a uniform time for New Zealand based on the meridian 172° 30' East. The advent of the telegraph had made rapid communications possible and therefore the concept of a uniform time feasible without the need for observations in every town and port. New Zealand was in fact the first country to establish a uniform time by legislation, and its scientists played an important role in establishing uniform time zones in certain other countries.

A new Colonial observatory was built in Wellington in 1869 in the Bolton Street Cemetery, on the site where the Richard John Seddon memorial now stands. Seddon's death in 1906, and the choice of the site for the memorial, precipitated the move of the Observatory to its present site in the Botanical Gardens in Kelburn. A small red brick building was erected on the site of the old Gardens Battery. It was completed in 1907 and became known as the Hector Observatory, after Sir James Hector, who had been Director of the Colonial Observatory.

Experiments with radio time signals began in 1916, with the reception of signals from Melbourne and transmission to ships in the vicinity of New Zealand and to Tahiti. Other regular services were established in 1919.

In 1926 the Department of Scientific and Industrial Research was formed, and became responsible for the Time Service. Although precision in time signals of a quarter of a second was claimed until the 1950s, the actual errors were often greater than this. The Geophysics Division of the DSIR was formed in 1951, and took over administrative responsibility for the Time Service. It was not until 1962, however, that any real advances were made. Clocks which used the very stable electrical oscillations of quartz crystals were installed. Checks were made regularly against radio time signals from overseas which were obtained from astronomical observations, and appropriate corrections were made for the propagation time to Wellington.

In 1987 responsibility for the Time Service passed to the Physics and Engineering Laboratory, DSIR, and was relocated from Kelburn in Wellington to Gracefield, Lower Hutt. In 1992 when the DSIR was disestablished and its responsibilities taken over by Crown Research Institutes, the Time Service remained at Gracefield but became the responsibility of the Measurement Standards Laboratory of New Zealand (MSL), part of Industrial Research Limited.

UTC and UT1

Since 1967 the world's time has been related to an even more stable clock than our rotating earth—the vibrations of the caesium atom. Each element has its characteristic frequency of vibration, such as that of sodium which gives us the familiar orange colour of highway lighting. Although the characteristic frequency of caesium is particularly stable, a caesium clock on its own does not constitute a time standard. Rather, information from caesium clocks maintained by standards laboratories around the world is collated by the Bureau Innternational des Poids et Mesures (BIPM) in Paris to provide Co-ordinated Universal Time (UTC). As with the old Greenwich Mean Time, UTC is the time at zero degrees longitude.

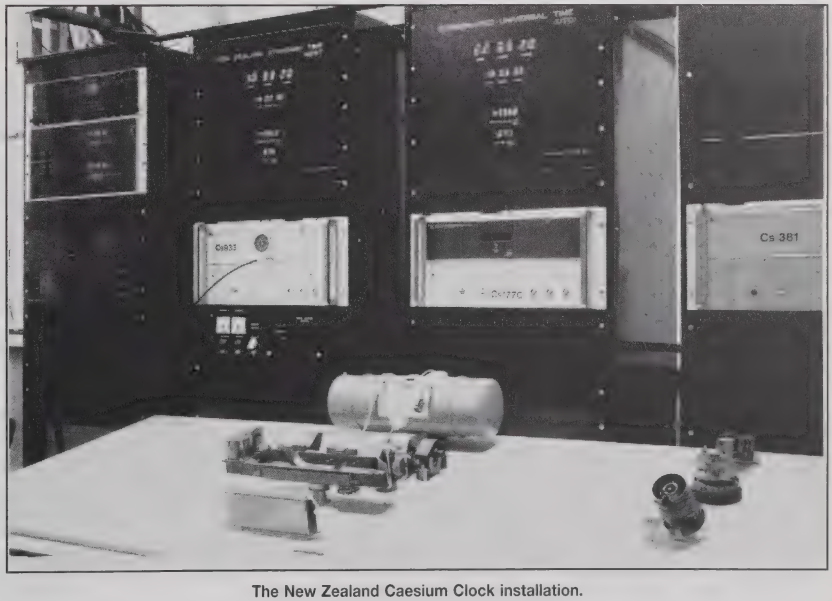
Because the rate of rotation of the earth is not constant, differences between mean solar time (UT1) and the atomic time (URC) accrue which in time could become inconvenient. It is therefore necessary to make periodic adjustments to the atomic scale so that it roughly approximates UT1. At the beginning of 1972 the cumbersome "variable length second" used to adjust atomic time was replaced by the "leap second concept". UTC was set up to be slightly fast, so that a "leap second" could be added on the first day of January or July when necessary, but would not be expected to average more than one a year. An adjustment was made on July 1, 1997 of one second so that the atomic time scale has now been incremented by 31 seconds since 1972. The atomic time scale is thus at all times within ±0.7 seconds of mean solar time. The difference between UT1 and UTC, known as DUT1, is encoded and broadcast by time and frequency stations.

The New Zealand Time and Frequency Standard

The New Zealand time standard is maintained by means of three caesium clocks. Linkage to the BIPM is via the Global Positioning Satellite system which give accuracies of better than 100 nanoseconds. The satellite system is also utilized to transfer the MSL atomic time to the BIPM to be included in the ensemble of clocks used to calculate the international atomic time scale.

The time standard is also New Zealand's frequency standard, accurate to parts in 10^{13}. Standard frequency dissemination to New Zealand users is via the TV1 and TV2 television transmissions. The colour burst frequencies of these transmissions are controlled by rubidium oscillators which are monitored against the MSL caesium clocks, and are usually within 10^{11} of the nominal colour burst frequency of 4.43361875 MHz. The highest accuracies, approaching one part in 10^{12}, are obtained by comparing the timing of selected synchronization pulses with results obtained at MSL.

The most widely used time signals in New Zealand are those generated by MSL, for broadcast by Radio New Zealand. Some private radio stations also broadcast the time signals. These signals are transmitted every hour and consist of six "pips" of 1000 Hz tone, at one second intervals, the beginning of each pip marking the exact second. When a pip marks the exact hour, its length is doubled. The precision with which the beginning of the long pip marks the exact hour is usually less than 10 µS as it leaves MSL. Delays along telephone lines to Radio New Zealand and in radio



The New Zealand Caesium Clock installation.

propagation to the remote parts of New Zealand can amount to a few milliseconds. When it is necessary to insert a leap second, seven pips are broadcast.

Talking Clock

MSL operates a talking clock which is made available to the New Zealand public via the Telecom NZ 0900 service for a standard charge, currently 80 cents per call from anywhere in New Zealand. On dialling 0900 45-678 to access the talking clock, the user receives a voice announcement of the time followed by three "pips" of 1000 Hz tone. The start of the third pip is the exact time. The announcement and pips are repeated at 10 second intervals to give six time announcements in all, ensuring that the full minute is always included. The accuracy of the talking clock is limited by the propagation delays of the telephone network which would not normally exceed 30 mS for the remotest parts of New Zealand.

MSL has recently developed a dial-up time service for computers. On dialling the service (0900-45-222) using a 1200 baud modem, a series of time strings is transmitted which contain the current time and date for both New Zealand time and UTC time, and an on-time marker. Warning is provided of forthcoming leap seconds and daylight saving changes. The accuracy of the system is limited by propagation delays in the telephone network and scrambler delays in the modems to around 100 mS. Software for IBM-compatible PCs to access the system automatically is available at no cost from MSL.

WWV and WWVH

The National Institute of Standards and Technology (NIST) broadcasts standard time and frequency transmissions continuously through stations WWV and WWVH.Station WWV is located at Fort Collins, Colorado and broadcasts continuously on the radio frequencies of 2.5, 5, 10, 15 and 20 MHz. Station WWVH is located at Kauai, Hawaii and broadcasts continuously on the radio frequencies of 2.5, 5, 10 and 15 MHz.

Both stations are controlled by caesium atomic oscillators. The frequencies are stable to better than one part in 10^{11} at all times, compared with the primary atomic standards maintained at the NIST Boulder laboratories. Changes in the propagation medium cause frequency changes which are several orders greater than the uncertainties described above.

Seconds pulses are transmitted continuously, even during tones and announcements, and are derived from the same oscillator which generates the carrier frequency. Seconds pulses comprise five cycles of 1000 Hz tone for WWV and six cycles of 1200 Hz tone for WWVH. Each minute, except the first of the hour, begins with an 800 mS tone of 1000 Hz at WWV and 1200 Hz at WWVH. Each pulse is preceded by 10 mS of silence and followed by 25 mS of silence. The first minute of the hour begins with an 800 mS tone of 1500 Hz from both stations.

At WWVH, time announcements are made by a female voice in the period 45 seconds to 52.5 seconds after each minute, while at WWV a male voice announces the time in the last 7.5 seconds of each minute. All time announcements are referred to in terms of UTC as maintained by the NIST. The Ø to 24 hours system is used. The first two figures give the hour and the last two figures give the minutes past the hour when the tone returns. The time announcement refers to the end of an announcement interval, ie, to the time when the 0.8 second long audio tone begins. At 1035 UTC for instance, the voice announcement, given in English, is: "At the tone, ten hours thirty-five minutes Co-ordinated Universal Time".

Standard audio frequencies of 440 Hz, 500 Hz and 600 Hz are broadcast by the two stations. The duration of each transmitted tone is approximately 45 seconds. A 600 Hz tone is broadcast by WWV during odd minutes and during even minutes by WWVH. A 500 Hz tone is broadcast during alternate periods unless voice announcements or silent periods are scheduled. The 440 Hz tone is broadcast beginning one minute after the hour at WWVH and two minutes after the hour at WWV. The 440 Hz tone is omitted during the first hour of the UTC day to act as a day marker. No audio tones or special announcements are broadcast during a semi-silent period from either station. The periods are from 45 to 50 minutes after the hour from WWV and from 15 minutes to 20 minutes after the hour at WWVH.

The method of coding the corrections (DUT1) to UTC to obtain UT1 uses a system of double second pulses. The first through eighth second pulse, when marked by a double pulse, will indicate a "plus" correction, and from the ninth through the fifteenth a "minus" correction. The amount of correction is determined by counting the number of second pulses which are doubled. For example, if the first, second and third second pulses are doubled, the correction is 0.3 seconds. Or if the ninth, tenth, eleventh, twelfth, thirteenth and fourteenth second pulses are doubled, the correction is "minus" 0.6 seconds.

A modified IRIG-H time code, giving the year, day of year, hour, minute, DUT1 value, and information on impending leap seconds and daylight saving (in the USA) is broadcast continuously on a 100 Hz sub-carrier.

A broadcast of radio propagation conditions and solar activity is broadcast in voice during part of every eighteenth minute of each hour from WWV. The announcements are short term forecasts, updated as required, every six hours if needed.

VNG

The Australian time and frequency station VNG is located at Llandilo, near Penrith in Sydney, and due to its close proximity to New Zealand, offers a more reliable source of time and frequency than other shortwave stations. Transmission frequencies are 2.5, 5, 8.638, 12.984 MHz on a continuous basis, and at 16 MHz from 2200–1000 UTC. Transmitter powers are 1 kW at 2.5 MHz, 5 kW at 16 MHz, and 10 kW at the other frequencies. Station identification is given during the 15th, 30th, 45th and 60th minutes using voice on 2.5, 5, and 16 MHz, and Morse on 8.638 and 12.984 MHz. A talking clock operating on 2.5, 5 and 16 MHz gives the time in UTC each minute, immediately after the minute marker.

The VNG time code format comprises normal seconds markers of 50 mS duration 100 Hz tone, reduced to 5 mS in seconds 55–58, and omitted for the 59th second. The minute marker is 500 mS of 1000 Hz tone. During the fifth, 10th, 15th, etc minute, seconds markers 50–59 are 5 mS of 1000 Hz tone. DUT1 information is conveyed during the first 16 seconds of the minute by normal seconds markers emphasized by 50 mS of 900 Hz tone.

A time code complying with CCIR recommendations is broadcast between seconds marker 20 and seconds marker 46. It gives time of day (UTC) and day number of year in binary-coded-decimal form, with the minute coded between seconds 21–28, the hour between 28–35, and the day of year between 35–46. The code is valid for the next minute. Binary "Ø" is 100 mS duration, binary "1" is 200 mS duration, and parity check bits are given at 28, 35, and 46 seconds. Counting binary "ones" of each group plus the corresponding parity bit gives an even number.

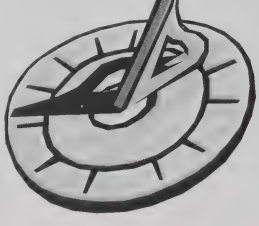
For more information see "Keeping Australians in tune and on time", *Electronics Australia*, June 1993, pp. 26–29. Technical enquiries and reception reports can be directed to: Executive Director, National Standards Commission, 12 Lyonpark Road, PO Box 282, North Ryde NSW 2113, Australia.

Global Positioning System

The Global Positioning System (GPS) is a worldwide satellite-based radionavigation system developed and operated by the US Department of Defence. It comprises 21 satellites orbiting the earth in 12 hour orbits. Each satellite broadcasts information on two microwave frequencies (1575.42 and 1227.60 MHz) giving the time according to the on-board caesium clock, and the current satellite position. In a navigation receiver this information is used to determine the receiver's position anywhere on earth. The deliberate degradation of the accuracy of the time information available to civilian users ceased in May 2000. Time accuracy of the order of 10 nanoseconds and a frequency stability of better than one part in 10^{12} can be obtained.

Although some manufacturers of GPS equipment claim traceability of the time and frequency information to the US Naval Observatory, such traceability is not recognized by most measurement accreditation bodies. This is because GPS is primarily a navigation system and the provision of time and frequency information is an incidental feature. It can be wrong at times: we have noted leap seconds being introduced at the correct time for the US but taking a further six hours before receivers in New Zealand were aware of the change.

A.C. Corney
Measurement Standards Laboratory, Industrial Research Limited



SHORT WAVE LISTENING

by
BARRY WILLIAMS
ZL1ACZ

Question a gathering of hams, and one will inevitably find that several were once DXers or shortwave listeners, before they moved on to join the ranks of amateur radio. Many listeners progress no further than just being listeners, a few becoming serious DXers, but for some the novelty of talking to the world draws them into amateur radio. Those who have progressed through the hobby of DXing have acquired much of the basic radio theory, and are better prepared for the study required to sit the amateur radio exam.

The similarities between the two hobbies are numerous. The bands that DXers monitor range from VLF to VHF. The modes range from AM to FM. With the increasing use of computers, digital reception is gaining interest. However, despite the widening range of options, listening to shortwave broadcasts still remains the most popular activity.

Like amateur radio, the equipment used over the years has changed. Gone are the days when the dual band household radio served as the DX receiver. After the war, DXers use war-surplus radio sets such as the Marconi 1155, ARC5 and Bendix MN26C compass receiver. Gradually, valve communication receivers, such as the Eddystone and Hallicrafters became available and affordable. Today, like the amateur, we are in the digital age, with sophisticated receivers ranging from the small portable SONY 7600G to the professional NRD545 communications receiver. Over the years amateur equipment has developed to an even greater extent, with many hams using multi functional transceivers that incorporate all-band general coverage reception.

Unlike the amateurs, the antennas used by the DXer over the years have changed little. The fortunate few who have the space to run out a beverage still chase the elusive medium wave DX. Most, persevere with an end-fed wire or a dipole. Those DXers living in high noise suburbia try and develop low-noise antennas. Like amateur radio there is great scope for development, but we do tend to lack the technical expertise that the ham fraternity can draw upon. Because of the wide range of shortwave bands, the DXer does have great difficulty designing a multi-band antenna. However, with regard to propagation, I feel that any top DXer can "hold their own" with a ham DXer. Propagation is just as important to both hobbies. We complain about band conditions just as much as the ham down the road.

For many shortwave listeners, the QSLing of reception reports is the whole purpose of it all. But more and more, verification is becoming less important and just hearing the station and program is the enjoyment. The variety of program heard over international broadcasters is far more varied and interesting than that heard on domestic radio. Nevertheless, serious DXing is still the backbone of the hobby, and the thrill of hearing and finally verifying a rare low powered station from some exotic country, is no different than that experienced by an amateur DXer.

DXing in New Zealand is almost as old as amateur radio, with the first DX club being formed in 1931. Although the New Zealand DX Club folded in the late 1940s, two other DX clubs are still active; the New Zealand DX Radio Association now in is 67th year and the New Zealand Radio DX League, which celebrated its 50th anniversary in 1998.

Group of international DXers chasing exotic broadcast signals at the 50th Anniversary Convention of New Zealand Radio DX League in 1998. Seated: Toshimichi Ohtake (Japan), Anker Petersen (Denmark). Standing: Ray Crawford and Chris Martin (Australia), Risto Vahakainu.

Keen members of the New Zealand Radio DX League at a DXpedition at Green Bay, Auckland, to hear special shortwave broadcasts from Radio St Helena. From left: Barry Williams ZL1ACZ, Paul Wells-Green ZL1WGP, the late Ivor Williams ZL1AGO and Arthur de Maine.

Amateur radio, like all other hobbies, loses some participants to other pastimes and interests. This loss of interest in many cases may be due to boredom or burnout with the hobby. New horizons and challenges may be needed. We all get stale or frustrated at some time. May I suggest to those amateurs who feel they need a variation or change, but still retain their interest in wireless, they consider shortwave listening. Some hams who entered amateur radio through the hobby of DXing might consider revisiting it. Most hams have an antenna and a rig capable of general coverage reception. It might be worthwhile tuning a bit further than just the ham bands. Start listening to the world of International Shortwave Broadcasting. Both hobbies fit nicely together, as found in Auckland where the Western Suburbs Radio Club allows the Auckland Branch of the New Zealand Radio DX League to hold its monthly meetings in their clubrooms. In return, Branch 03 has gained several newly licensed hams from the ranks of the DXers.

Check your *Break-In* and read Mike Butler's "Shortwave Listening" section. Try listening to a few broadcasts or write for a sample of the New Zealand Radio DX League's monthly magazine, the *NZ DX TIMES*. I have found that shortwave listening and amateur radio complement each other and have helped maintain my interest in both hobbies for many years.

Barry Williams ZL1ACZ

NEW ZEALAND COASTAL MARITIME RADIO STATIONS

VHF stations

The following table shows the scheduled broadcast times for Maritime Safety Information (MSI) transmitted by Maritime Radio VHF stations located around the New Zealand coast. Broadcasts will include Navigational and Meteorological warnings, the situation and forecast for all New Zealand sea areas, and Coastal Reports for Shipping. Transmissions will be made simultaneously on all of the working channels following a broadcast announcement call on VHF Ch 16. Vessels must then ensure they select the **appropriate working channel,** either channel **67** or **68** or **71,** based on their location at the time. All stations maintain continuous watch on Ch 16—Distress and Calling—and are remotely controlled from the Maritime Operations Centre, Wellington.

Ph: (04) 914-5663
Fax: (04) 914-5520

Call

Initial call should be made on Ch 16 (site name) Maritime Radio, eg: Plenty Maritime Radio (see Table 1).

Scheduled broadcast times (NZST or NZDT)

Warnings and Weather

0533, 0733, 1033, 1333, 1733, 2133.

The 1033 broadcast will only including all warnings in force and the coastal reports as at 0900 NZST or NZDT (no situation or forecasts).

Chatham Islands Fisherman's Radio

Distress and working

(No listening watch kept). Ch 60 (Chatham Island) and Ch 62 (Pitt Island).

Scheduled Broadcast times—Warnings and Weather

0603†, 1403†, 1803†, 2203†.

†Chatham Islands time is 45 minutes ahead of New Zealand local time.

MF/HF station

Taupo Maritime Radio (ZLM)

38° 52'S 176° 26'E.

Public MF/HF station for distress and safety purposes. Broadcasts of weather situation, forecasts and warnings, and navigational warning as shown in the schedule.

Note: remotely controlled from the Maritime Operations Centre, Wellington:

Ph: (04) 914-5663
Fax: (04) 914-5520

Continuous watch on

2182, 4125, 6215, 8291, 12290 16420 kHz.

Call

2182, 4125, 6215, 8291, 12290, 16420 kHz.

Working

2207, 4146, 6224, 8297, 12356, 16531 kHz.

HF radio communications forecasts and warnings

Maritime Safety Authority promulgate forecasts and warning to help mariners in selecting the most effective HF (SSB) frequency to use. HF radio communications change over time in response to changes in the Earth's ionosphere and in the amount of ultra-violet light emitted by the sun. Some of these changes happen over long cycles of many years, and some can be quite sudden and of short duration. The two types of information cater for these extremes.

HF radiocommunications forecasts

For the longer term variations, forecasts will be issued as Notices to Mariners every two or three months. See HF Night/Day Coverage Maps which provide assistance to the mariner in selecting the optimum HF frequency depending on their position and the time of day.

HF radiocommunications warnings

For short term, specific disturbances that are expected to adversely affect communications, the Maritime Safety Authority will issue HF Radio Communications Warnings. These warnings will describe the expected changes to the HF radio communications conditions, and indicate to the mariner how communications can be optimized for the period of the change. For severe disruptions, the warnings may indicate that communication is likely to be impossible at certain times and places. Armed with this warning the mariner can prepare in advance. These warnings will be broadcast on Taupo Maritime Radio ZLM as for navigational warnings.

Table 1

Station		Working
Kaitaia	Maritime Radio	Ch 71
Great Barrier Island	Maritime Radio	Ch 67, 68, 71
Auckland	Maritime Radio	Ch 71
Plenty	Maritime Radio	Ch 68
Runaway	Maritime Radio	Ch 71
Tolaga	Maritime Radio	Ch 67
Napier	Maritime Radio	Ch 68
Wairarapa	Maritime Radio	Ch 67
Taranaki	Maritime Radio	Ch 67
Wellington	Maritime Radio	Ch 71
Picton	Maritime Radio	Ch 68
D'Urville	Maritime Radio	Ch 67
Farewell	Maritime Radio	Ch 68
Kaikoura	Maritime Radio	Ch 67
Akaroa	Maritime Radio	Ch 68
Waitaki	Maritime Radio	Ch 67
Chalmers	Maritime Radio	Ch 71
Westport	Maritime Radio	Ch 71
Greymouth	Maritime Radio	Ch 68
Fox	Maritime Radio	Ch 67
Fiordland	Maritime Radio	Ch 71
Puysegur	Maritime Radio	Ch 67
Bluff	Maritime Radio	Ch 68

SINPO CODE

S	signal strength	1. Barely audible 2. Poor 3. Fair 4. Good 5. Excellent
I	interference	1. Extreme 2. Severe 3. Moderate 4. Slight 5. Nil
N	noise	1. Extreme 2. Severe 3. Moderate 4. Slight 5. Nil
P	fading	1. Extreme 2. Severe 3. Moderate 4. Slight 5. Nil
O	overall rating	1. Unusable 2. Poor 3. Fair 4. Good 5. Excellent

for reporting broadcast transmissions

MARITIME SAFETY AUTHORITY OF NEW ZEALAND

Te Mana Ārai Hauata Moana o Aotearoa

MOC Phone / Fax

Phone: (04) 914-5663
Fax: (04) 914-5520

B·C·L
BROADCAST COMMUNICATIONS LIMITED

ISS L 5.3.01 17800-444

NEW ZEALAND RADIO SPECTRUM USAGE

This table indicates significant, but not necessarily exclusive, existing and planned usage within New Zealand of ranges of frequencies (ie "bands") by various radio services. It is based on the International Radio Table of Allocations—particularly where international co-ordination is important such as in the aeronautical, maritime, satellite, navigation, spece research, astronomy and amateur services. It should be noted, however, that some spectrum in New Zealand is the subject of privately owned management rights and this table is indicative usage based on such current information held by the Ministry as to the nature of licences issed by the managers of that spectrrum.

Ministry of Economic Development
(Radio Spectrum Division)

9–90	Fixed, Maritime-Mobile and Radionavigation
90–120	Radionavigation (LORAN C)
120–140	Restricted Radiation Devices (RRD)
140–165	Fixed, Maritime-Mobile and Radionavigation
165–190	Fixed, Radionavigation and Amateur
190–285	Aeronautical Beacons
285–325	Aeronautical and Maritime Beacons
325–415	Aeronautical Beacons
415–521	Maritime
521–1612	MF-AM Sound Broadcasting
1612–1690	Aeronautical Beacons, Broadcasting
1690–1800	Cordless Telephone (CT1 Base Tx), Radio Buoys
1800–1950	Amateur 160 m Band
1950–2000	Radio Buoys
2000–2300	Fixed and Mobile
2300–2495	Broadcast 120 m Band (Tropical)
2495–2505	Standard Frequency 2.5 MHz
2505–2850	Fixed and Mobile
2850–3155	Aeronautical
3155–3200	Fixed and Mobile
3200–3400	Broadcast 90 m Band (Tropical)
3400–3500	Aeronautical
3500–3900	Amateur 80 m Band
3900–4000	Broadcast 75 m Band
4000–4438	Maritime
4438–4650	Fixed and Mobile
4650–4750	Aeronautical
4750–4995	Broadcast 60 m Band (Tropical)
4995–5005	Standard Frequency 5 MHz
5005–5060	Broadcast 60 m Band (Tropical)
5060–5480	Fixed and Mobile
5480–5730	Aeronautical
5730–5900	Fixed and Mobile
5900–6200	Broadcast 49 m Band
6200–6525	Maritime
6525–6765	Aeronautical
6765–6795	ISM and RRD
6795–7000	Fixed and Mobile
7000–7100	Amateur 40 m Band
7100–7350	Broadcast 41 m Band, Amateur (7100–7300)
7350–8100	Fixed and Mobile
8100–8815	Maritime
8815–9040	Aeronautical
9040–9400	Fixed
9400–9900	Broadcast 31 m Band
9900–9995	Fixed
9995–10005	Standard Frequency 10 MHz

MHz

10.005–10.100	Aeronautical
10.100–10.150	Amateur 30 m Band
10.150–11.175	Fixed
11.175–11.400	Aeronautical
11.400–11.600	Fixed
11.600–12.100	Broadcast 25 m Band
12.100–12.230	Fixed
12.230–13.200	Maritime
13.200–13.360	Aeronautical
13.360–13.550	Fixed and Mobile
13.550–13.570	ISM and RRD
13.570–13.570	Broadcast 22 m Band
13.870–14.000	Fixed
14.000–14.350	Amateur 20 m Band
14.350–14.990	Fixed
14.990–15.010	Standard Frequency 15 MHz
15.010–15.100	Aeronautical
15.100–15.800	Broadcast 19 m Band
15.800–16.360	Fixed
16.360–17.410	Maritime
17.410–17.480	Fixed
17.480–17.900	Broadcast 16 m Band
17.900–18.030	Aeronautical
18.030–18.068	Fixed
18.068–18.168	Amateur 17 m Band
18.168–18.780	Fixed
18.780–18.900	Maritime
18.900–19.020	Broadcast 15 m Band
19.020–19.680	Fixed
19.680–19.800	Maritime
19.800–19.990	Fixed
19.990–20.010	Standard Frequency 20 MHz
20.010–21.000	Fixed
21.000–21.450	Amateur 15 m Band
21.450–21.850	Broadcast 13 m Band
21.850–21.870	Fixed
21.870–22.000	Aeronautical
22.000–22.855	Maritime
22.855–23.200	Fixed
23.200–23.350	Aeronautical
23.350–24.890	Fixed and Mobile
24.890–24.990	Amateur 12 m Band
24.990–25.010	Standard Frequency 25 MHz
25.010–25.070	Fixed and Mobile
25.070–25.210	Maritime
25.210–25.550	Fixed and Mobile
25.550–25.670	Astronomy
25.670–26.100	Broadcast 11 m Band
26.100–26.175	Maritime
26.175–26.300	Fixed and Mobile

26.300–44.000	26.300			
		Citizen Radio Service "CB" Band		
		CB1	26.330	
		CB40	26.770	
	26.800			
		Fixed and Mobile		
	26.960			
		Paging, ISM (27.120 MHz), RRD		
	27.300			
		Fixed and Mobile		
	28.000			
		Amateur 10 m Band		
	29.700			
		RRD		
	30.000			
		Cordless Telephone "CT1" Band		
		CT1-1	30.075 Base Tx	
		CT-20	30.775 Base Tx	
	30.800			
		Paging 31.3–31.6 MHz, RRD		
	32.000			
		Fixed and Mobile (TV Sound IF 33.40 MHz)		
	35.000			
		ISM 35.4–36.0, RRD Telecontrol and Telemetry 36.0–36.6 MHz		
	37.200			
		Fixed and Mobile (TV Vision IF 38.90 MHz		
	39.000			
		RRD		
	39.700			
		Cordless Telephone "CT1" Band		
		CT1-1	39.776 Mobile Tx	
		CT1-29	40.475 Mobile Tx	
	40.500			
		ISM 40.66–40.7 MHz, RRD		
	41.000			
		Fixed and Mobile		
44.000–68.000	44.000			
		VHF Television Broadcasting (Band I)		
		CHL 1	44–51	
	51.000			
		Amateur 6 m Band		
	53.000			
		Fixed, Mobile and Amateur		
	54.000			
		VHF Television Broadcasting (Band I)		
		CHL 2	54–61	
		CHL 3	61–68	
68.000–74.800	68.000			
		Fixed "AB" Band		
		ABX1	68.0125	Simplex
		ABX159	69.9875	Simplex
		AB1	70.0125	Alpha Tx
		AB143	71.7875	Alpha Tx
		ABX160	71.8125	Simplex
		ABX174	71.9875	Simplex
	72.000			
		RRD and Cordless Telephone "CT1" Band		
		CT1-22	72.800 Mobile Tx	
		CT1-29	72.975 Mobile Tx	
	73.000			
		Fixed "AB" Band		
		AB1	73.0125	Beta Tx
		AB143	74.7875	Beta Tx
74.800–75.200	74.800			
		Aeronautical Marker Beacons		
75.200–80.000	75.200			
		Land Mobile "ESA" Band (Emergency Services)		
		ESA1	75.2250	Base Tx
		ESA86	76-2875	Base Tx
	76.300			
		Not allocated		
	78.100			
		Land Mobile "ESA" Band (Emergency Services)		
		ESA1	78.10625	Mobile Tx
		ESA86	79.16875	Mobile Tx
	79.200			
		Not allocated		
80.000–88.000	80.000			
		Land Mobile "A" Band		
		AX01	80.0125	Simplex
		AX41	80.5125	Simplex
		A501	80.5250	Base Tx
		A539	81.0000	Base Tx
		A1	81.0125	Base Tx
		A242	84.0250	Base Tx

		AX101	84.0375	Simplex
		AX136	84.4750	Simplex
		A501	84.49375	Mobile Tx
		A539	84.96875	Mobile Tx
		A1	84.98125	Mobile Tx
		A242	87.99375	Mobile Tx
88.000–108.000	88.000			
	88.800	Guardband, Low Power Sound Broadcasting		
		VHF-FM Sound Broadcasting (Band II)		
		FM110	89.0	
		FM220	100.0	
	100.200			
	100.800	RRD, Wireless Public Address systems		
	100.990	Guardband		
		Land Mobile "B" Band		
		B1	101.0000	Mobile Tx
		B242	104.0125	Mobile Tx
		BX243	104.0250	Simplex
		BX318	104.9625	Simplex
		B1	104.9750	Base Tx
		B242	107.9875	Base Tx
	108.000			
	Draft future plan:			
	88.000			
	88.500	RRD		
	107.500	Sound Broadcasting (FM and/or Digital)		
108.000–137.000	108.000	RRD		
	112.000	Aeronautical ILS Localizers		
	117.975	Aeronautical VOR Beacons		
		Aeronautical Communications (R)		
		ACX1	118.000	
		ACX480	129.975	
	130.000			
		Aeronautical Communications (OR)		
		ARX1	130.025	
		ARX79	131.975	
	132.000			
		Aeronautical Repeater (OR)		
		AR1	132.025	Base Tx
		AR23	132.575	Base Tx
	132.600			
		Aeronautical Communications (OR)		
		ARX80	132.625	
		ARX190	135.375	
	135.400			
		Aeronautical Repeater (OR)		
		AR1	135.425	Mobile Tx
		AR23	135.975	Mobile Tx
	136.000			
137.000–138.000	137.000	Aeronatuical Communications (OR)		
138.000–144.000	138.000	Mobile-Satellite and Meteorological-Satellite, (S-E)		
		Land Mobile "ESB" Band (Emergency Services)		
		ESB1	138.0125	Mobile Tx
		ESB200	140.5000	Mobile Tx
		ESBX1	140.5125	Simplex
		ESBX40	141.0000	Simplex
		ESB1	141-0125	Base Tx
		ESB200	143.5000	Base Tx
		ESBX41	143.5125	Simplex
		ESBX79	143.9875	Simplex
144.000–148.000	144.000			
	148.000	Amateur 2 m Band		
148.000–149.900		Mobile-Satellite Service (E-S)		
149.900–150.050	149.500	Radionavigation-Satellite (TRANSIT)		
		Mobile-Satellite (E-S)		
150.050–156.000	150.050	Land Mobile "E" Band		
		ENX1	150.0625	Simplex
		ENX75	150.9875	Simplex
		EN22	151.0125	Base Tx
		EN213	153.4000	Base Tx
		ENX76	153.43125	Simplex
		ENX89	153.59375	Simplex
		EN87	153.60625	Mobile Tx
		EN213	155.18125	Mobile Tx
		EN22	155.19375	Mobile Tx
		EN86	155.99375	Mobile Tx
156.000–162.200	156.000			
		Maritime Mobile "MM" Band		
		MM60	156.025	Mobile Tx
		MM7	156.350	Mobile Tx
		MM67	156.375	Simplex
		MM77	156.875	Simplex
		MM18	156.900	Mobile Tx
		MM91	157.575	Mobile Tx
	157.600			
		Wide-Area Paging "WP" Band		
		WPN1	157.6125	
		WPN37	158.0625	
	158.070			
		Land Mobile "MS" Band (Special Services)		
		MS1	158.0750	Mobile Tx
		MS41	158.5750	Mobile Tx
		MSX1	158.6000	Simplex
		MSX120	160.0875	Simplex
	160.100			
	160.600	Telemetry (160.1–160.3) and Paging (160.3–160.6), RRD		
		Maritime Mobile "MM" Band		
		MM60	160.625	Coast Tx
		MM7	160.950	Coat Tx
	160.970			
		Land Mobile "MS" Band		
		MS1	160.9750	Base Tx
		MS40	161.4750	Base Tx
	161.490			
		Maritime Mobile "MM" Band		
		MM18	161.500	Coast Tx
		MM91	162.175	Coast Tx
162.200–174.000	162.200			
		Land Mobile "EE" Band		
		EE1	162.2125	Base Tx
		EE279	165.6875	Base Tx
		EEX1	165.7125	Simplex
		Eex55	166.3874	Simplex
	166.400			
		Wide Area Paging "WP" Band		
		WPN38	166.4125	
		WPN68	166.7875	
	166.800			
		Land Mobile "EE" Band		
		EE1	166.8125	Mobile Tx
		EE279	170.2875	Mobile Tx
		EEX88	170.3125	Simplex
		EEX302	172.9875	Simplex
	173.000			
174.000–230.000	174.000	RRD		
		VHF Television Broadcasting (Band III)		
		CHL 4	174–181	
		CHL 5	181–188	
		CHL 6	188–195	
		CHL 7	195–202	
		CHL 8	202–209	
		CHL 9	209–216	
		CHL 10	216–223	
		CHL 11	223–230	
230.000–404.000	230.000			
		230.00–300.00 International Military		
		300.00–305.00 International Military, RRD		
		305.00–328.60 International Military		
		328.60–335.40 Aeronautical ILS Glidepath		
		335.50–380.00 International Military		
	380.000			
		Land Mobile "ESC" Band (Emergency Services) (under negotiation)		
	383.000			
		383.00–390.00 International Military		
	390.000			
		Land Mobile "ESC" Band (Emergency Services) (under negotiation)		
	393.000			
		393.00–399.90 International Military		
		399.90–400.05 Radionavigation-Satellite (TRANSIT)		
		400-05–400.15 Standard Frequency Satellite		
		400.15–401.00 Meteorological & Met-Satellite (S-E)		
		401.00–404.00 Meteorological		
404.000–430.000	404.000	Fix "IA" Bandff		Alpha Tx
	406.000	Beacon—Satellite Distress Band		
	406.100	Land Mobile "TD" Band		
		TD9	406.1125	Mobile Tx
		TD319	409.9875	Mobile Tx
	410.000	Fixed "IB" Band		Alpha Tx
	412.000	Fixed "IA" Band		Beta Tx
	414.000	Land Mobile "TD" Band		
		TDX1	414.0125	Simplex
		TDX7	414.0875	Simplex
	414.100	Land Mobile "TD" Band		
		TD9	414.1125	Base Tx
		TD319	417.9875	Base Tx
	418.000	Fixed "IB" Band		Beta Tx
	420.000	Fixed "IC" Band		Alpha Tx
	425.000	Fixed "IC" Band		Beta Tx
430.000–440.000	430.000	Radiolocation, Amateur 70 cm Band		
440.000–470.000	440.000	Fixed, Mobile, Radiolocation, Amateur		
	448.000	Radiolocation		
	449.000	Fixed "JC" Band		Simplex
	449.750	Land Mobile "C" Band		
		CNX1	449.75625	Simplex
		CNX20	449.99375	Simplex
	450.000	Fixed "JC" Band		Simplex
	450.275	Land Mobile "C" Band		
		CN1	450.28125	Mobile Tx
		CN242	453.29375	Mobile Tx
		CNX21	453.30625	Simplex
		CNX46	453.61875	Simplex
	453.625	Fixed "JA" Band		Alpha Tx
	454.975	Land Mobile "C" Band		
		CNX47	454.98125	Simplex
		CNX73	455.30625	Simplex

	CN1	455.31875	Base Tx
	CN242	458.33125	Base Tx
458.335			
	Land Mobile "D" Band		
	DNX1	458.34375	Simplex
	DNX16	458.53125	Simplex
458.540			
458.610	Paging, RRD		
	Land Mobile "D" Band		
	DNX17	458.61875	Simplex
	DNX20	458.65625	Simplex
458.665			
	Fixed "JA" Band		Beta Tx
	Fixed "JD" Band		Alpha Tx
	Fixed "JE" Band		Simplex
461.475			
	Land Mobile "D" Band		
	DNX21	461.48125	Simplex
	DNX47	461.80625	Simplex
	DN1	461.81875	Base Tx
	DN240	464.80625	Base Tx
	DNX48	464.81875	Simplex
	DNX77	465.18125	Simplex
465.190			
	Fixed "JF" Band		Simplex
	Fixed "JD" Band		Beta Tx
	Fixed "JG" Band		Simplex
466.675			
	Land Mobile "D" Band		
	DNX78	466.68125	Simplex
	DNX87	466.79375	Simplex
466.800			
466.850	RRD, Telemetry		
	Land Mobile "D" Band		
	DNX88	466.85625	Simplex
	DNX99	466.99375	Simplex
	DN1	467.00625	Mobile Tx
	DN240	469.99375	Mobile Tx
470.000–502.000 470.000			
470.500	RRD (Medical Telemetry only)		
	Land Mobile "F" Band		
	FNX101	470.50625	Simplex
	FNX140	470.99375	Simplex
471.000			
471.500	RRD		
	Land Mobile "F" Band		
	FNX201	471.50625	Simplex
	FNX240	471.99375	Simplex
	FN1	472.00625	Mobile Tx
	FN320	475.99375	Mobile Tx
	FNX301	476.00625	Simplex
	FNX332	476.39375	Simplex
476.400			
	Personal Radio Services "PRS" Band		
	PRS1	476.425	
	PRS40	477.400	
477.425			
	Land Mobile "F" Band		
	FNX401	477.43125	Simplex
	FNX445	477.98125	Simplex
	FN1	477.99375	Base Tx
	FN320	481.98125	Base Tx
	FNX501	481.99375	Simplex
	FNX660	483.98125	Simplex
	FN321	483.99375	Base Tx
	FN640	487.98125	Base Tx
	FNX701	487.99375	Simplex
	FNX861	489.99375	Simplex
	FN321	490.00625	Mobile Tx
	FN640	493.99375	Mobile Tx
	FP1	494.01875	Mobile Tx
	FP279	497.49375	Mobile Tx
	FPX1	497.5125	Simplex
	FPX39	497.9875	Simplex

NOTE: The Spectrum plan shown for 494–518 MHz is draft only and subject to further consideration and consultation.

	FP1	498.0125	Base Tx
	FP279	501.4875	Base Tx
	FPX101	501.5125	Simplex
	FPX139	501.9875	Simplex
502.000–806.000 502.000			
	UHF Television Broadcasting (Bands IV and V)		
	E25	502–510	Block 0
	E26	510–518	
	E27	518–526	Block 1
	E28	526–534	
	E29	534–542	
	E30	542–550	
	E31	550–558	Block 2
	E32	558–566	
	E33	566–574	
	E34	574–582	
	E35	582–590	Block 3
	E36	590–598	(Govt
	E37	598–606	reserved)
	E38	606–614	
	E39	614–622	Block 4
	E40	622–630	(Govt
	E41	630–638	reserved)
	E42	638–646	
	E43	646–654	Block 5
	E44	654–662	
	E45	662–670	
	E46	670–678	
	E47	678–686	Block 6
	E48	686–694	
	E49	694–702	
	E50	702–710	
	E51	710–718	Block 7
	E52	718–726	
	E53	726–734	
	E54	734–742	
	E55	742–750	Block 8
	E56	750–758	
	E57	758–766	
	E58	766–774	
	E59	774–782	Block 9
	E60	782–790	
	E61	790–798	
	E62	798–806	

806.000–890.000 806.000			
812.000	Fixed "KK" Band		Alpha Tx
	Land Mobile "ESD" Band (Emergency Services)		
	ESD241	812-0125	Mobile Tx
	ESD280	812.9875	Mobile Tx
813.000			
814.000	Expansion of ES or TS Bands		
	Land Mobile "TS" Band (Trunked Despatch)		
	TS321	814.0125	Mobile Tx
	TS520	818.9875	Mobile Tx
819.000			
824.000	RRD		
825.015	Not allocated (AMPS extension Channels 991–1023)		
	AMPS/DAMPS Cellular Band (Private Management Right)		
	AMPS1	825.030	Mobile Tx
	AMPS666	844.980	Mobile Tx
845.000			
849.000	Alternative pairing with 890–894 MHz for US cellular		
851.000	Not allocated		
857.000	Fixed "KK" Band		Beta Tx
	Land Mobile "ESD" Band (Emergency Services)		
	ESD241	857.0125	Base Tx
	ESD280	857.9875	Base Tx
858.000			
850.000	Expansion for ES or TS Bands		
	Land Mobile "TS" Band (Trunked Despatch)		
	TS321	859.0125	Base Tx
	TS520	863.9875	Base Tx
864.000			
	Cordless Telephone "CT2" Band		
	CT2-1	864.150	
	BS2-40	868.050	
868.100			
	Land Mobile "TX" Band		
	TX1	868.1125	Simplex
	TX37	869.0125	Simplex
869.025			
870.015	Not allocated (AMPS extension channels 991–1023)		
	AMPS/DAMPS Cellular Band (Private Management Right)		
	AMPS1	870.030	Base Tx
	AMPS666	889.980	Base Tx
890.000–960.000 890.000			
	GSM Cellular Band (Private & Crown Management Rights)		
	GSM1	890.200	Mobile Tx
	GSM124	914.800	Mobile Tx
915.000			
921.000	Fixed "K" Band (Studio-Transmitter Links)		
929.000	ISM, RRD, Amateur		
931.700	Fixed "K" Band (Studio-Transmitter Links)		
	Paging "KP" Band		
	KP1	931.7125	
	KP12	931.9875	
932.000			
935.000	Fixed "K" Band (Studio-Transmitter Links)		
	GSM Cellular Band (Private & Crown Management Rights)		
	GSM1	935.200	Base Tx
	GSM124	959.800	Base Tx
960–1427 960.000			
	960–1215	Aeronautical Radionavigation	
	1215–1240	Radiolocation and Radionavigation	
	12.40–1300	Radiolocation and Amateur	
	1300–1400	Radiolocation and Radionavigation	
	1400–1427	Astronomy and Space Research	
1427–1525 1427			
	1427–1465	Fixed "L" Band (Alpha Tx)	
	1465–1485	Broadcasting and Broadcasting-Satellite	
	1485–1525	Fixed "L" Band (Beta Tx)	

1525–1710	1525	
		1525–1559 Mobile Satellite (S-E) (incl INMARSAT)
		1559–1610 Radionavigation-Satellite (S-E) (eg GPS)
		1610–1626.5 Mobile-Satellite (E-S) (see 2483.5 MHz)
		1626.5–1660.5 Mobile Satellite (E-S) (incl. INMARSAT)
		1660.5–1670 Astronomy, Space Research, & Met Aids
		1670–1675 Aeronautical Public Correspondence (APC)
		1675–1710 Meteorological-Satellites (S-E) (eg TIROS)
1710–2300	1710	
		1710–1720 Not allocated
		1720–1805 Fixed "M" Band (Alpha Tx)
		1805–1810 Not allocated
		1810–1895 Fixed "M" Band (Beta Tx)
		1895–2300 Fixed "N" Band
		(Note: Current use of this band is likely to change significantly with the introduction of PCS/MSS and FPLMTS services.)
2300–2396	2300	
		MDS Band (12 × 8 MHz Private Management Rights)
2396–2500	2396	
		2396–2400 Amateur
		2400–2450 ISM, RRD and Amateur
		2450–2483.5 ISM and RRD
		2483.5–2500 ISM and Mobile-Satellite (S-E) (see 1610 MHz)
2500–2690	2500	
		2500–2690 Fixed "O" Band
2690–3400	2690	
		2690–2700 Astronomy and Space Research
		2700–3300 Radiolocation/Navigation (Weather radar)
		3300–3400 Radiolocation and Amateur
3400–4200	3400	
		3400–3600 Fixed "PB" Band and Amateur (3400–3500)
		3600–4200 Fixed "P" Band & Fixed-Satellite (S-E) (INTELSAT)
4200–5875	4200	
		4200–4400 Aeronautical Radionavigation
		4400–5000 Fixed "PC" Band
		5000–5650 Radiolocation/Navigation (MLS 5000–5250)
		5650–5875 Radiolocation, ISM & RRD (5725–5875) & Amateur (5650–5850)
5875–8500	5875	
		5875–5925 Fixed "RB" Band
		5925–6420 Fixed "R" Band & Fixed-Satellite (S-E) (INTELSAT)
		6420–7100 Fixed "T" Band
		7100–7425 Fixed "V" Band
		7425–7730 Fixed "U" Band
		7730–8290 Fixed "W" Band
		8290–8500 Fixed "Y" Band
8.50–10.50 GHz	8.50	
		8.50–10.00 Radiolocation/Navigation
		10.00–10.50 Radiolocation and Amateur
10.50–13.25	10.50	
		10.50–10.68 Fixed "H" Band
		10.68–10.70 Astronomy and Space Research
		10.70–11.70 Fixed "Z" Band
		11.70–12.20 Broadcasting Satellite and MDS
		12.20–12.50 Fixed "Q" Band and Fixed-Satellite (S-E)
		12.50–12.75 Fixed "S" Band and Fixed-Satellite (S-E)
		12.75–13.25 Fixed "X" Band
13.25–14.00	13.25	
		13.25–13.40 Aeronautical Radionavigation
		14.30–14.00 Radiolocation
14.00–15.35	14.00	
		14.00–14.50 Fixed-Satellite (S-E)
		14.50–15.35 Fixed "15G" Band
15.35–17.30	15.35	
		15.35–15.40 Astronomy and Space Research
		15.40–15.70 Aeronautical Radionavigation
		15.70–17.30 Radiolocation
17.30–23.60	17.30	
		17.30–17.70 Fixed-Satellite (E-S)
		17.70–19.70 Fixed "18G" Band
		19.70–21.20 Fixed-Satellite, Mobile-Satellite (S-E)
		21.20–23.60 Fixed "23G" Band, Broadcast-Satellite (21.4–22.0)
23.60–25.25	23.60	
		23.60–24.00 Astronomy and Space Research
		24.00–24.05 Amateur
		24.05–24.25 Radiolocation, Amateur, ISM (24.125) and RRD
		24.25–25.25 Radionavigation
		25.25–31.30 Not allocated (LMCS under consideration)
		31.30–37.00 Astronomy, Space Research and Radionavigation
37.00–60.00	37.00	
		37.00–40.00 Fixed "38G" Band
	40.00	
		40.00–47.00 Not allocated
		47.00–47.20 Amateur
		47.20–50.40 Not allocated
	50.40	
		50.40–51.15 Fixed "50G" Band
	41.15	
		51.15–51.40 Not allocated
		51.40–54.25 Space Research
		54.25–57.20 Not allocated
	57.20	
		57.20–58.20 Fixed "60G" Band

NEW ZEALAND TELEVISION BROADCASTING CHANNELS

Channels 1 to 3 are VHF Low Band (Band I—44 to 68 MHz).

Channels 4 to 11 are VHF High Band (Band III—174 to 230 MHz).

Channels 27 to 62 are UHF Band (Band IV and V—518 to 806 MHz).

Transmissions conform to 625 line CCIR System B on VHF and System G on UHF with PAL colour.

The vision carrier frequency is nominally 1.25 MHz above the lower channel edge (an offset between –26 kHz and +26 kHz from the nominal may apply); the rest frequency of the analogue FM sound carrier is 5.4996 MHz above the vision carrier frequency; the centre frequency of the NICAM digital sound carrier (if transmitted) is 5.850 MHz above the vision carrier frequency. The B/G variant of 728 NICAM is used which has a total occupied bandwidth of 510 kHz.

Channel Sound Number	Frequency Limits (MHz)	Vision Carrier (MHz)	FM Sound Carrier (MHz)	NICAM Carrier (MHz)
VHF				
1	45 to 51	45.25	50.75	51.10
2	54 to 61	55.25	60.75	61.10
3	61 to 68	62.25	67.75	68.10
4	174 to 181	175.25	180.75	181.10
5	181 to 188	182.25	187.75	188.10
6	188 to 195	189.25	194.75	195.10
7	195 to 202	196.25	201.75	202.10
8	202 to 209	203.25	208.75	209.10
9	209 to 216	210.25	215.75	216.10
10	216 to 223	217.25	222.75	223.10
11	223 to 230	224.25	229.75	230.10
UHF				
27	518 to 526	519.25	524.75	525.10
28	526 to 534	627.25	532.75	533.10
29	534 to 542	535.25	540.75	541.10
30	542 to 550	543.25	548.75	549.10
31	550 to 558	551.25	556.75	557.10
32	558 to 566	559.25	564.75	565.10
33	566 to 574	567.25	572.75	573.10
34	574 to 582	575.25	580.75	581.10
35	582 to 590	583.25	588.75	589.10
36	590 to 598	591.25	596.75	597.10
37	598 to 606	599.25	604.75	605.10
38	606 to 614	607.25	612.75	613.10
39	614 to 622	615.25	620.75	621.10
40	622 to 630	623.25	628.75	629.10
41	630 to 638	631.25	636.75	637.10
42	638 to 646	639.25	644.75	645.10
43	646 to 654	647.25	652.75	653.10
44	654 to 662	655.25	660.75	661.10
45	662 to 670	663.25	668.75	669.10
46	670 to 678	671.25	676.75	677.10
47	678 to 686	679.25	684.75	685.10
48	686 to 694	687.25	692.75	693.10
49	694 to 702	695.25	700.75	701.10
50	702 to 710	703.25	708.75	709.10
51	710 to 718	711.25	716.75	717.10
52	718 to 726	719.25	725.75	726.10
53	726 to 734	727.25	732.75	733.10
54	734 to 742	735.25	740.75	741.10
55	742 to 750	743.25	748.75	749.10
56	750 to 758	751.25	756.75	757.10
57	758 to 766	759.25	764.75	765.10
58	766 to 774	767.25	772.75	773.10
59	774 to 782	775.25	780.75	781.10
60	782 to 790	783.25	788.75	789.10
61	790 to 798	791.25	796.75	797.10
62	798 to 806	799.25	804.75	805.10

The 20-year management rights for Channels 27 to 34 and 43 to 62 have been sold to a number of television broadcast companies.

Channels 35 to 38 are currently used for Aeronautical Radionavigation (Radar).

Channel 39 is used for Amateur Television and Amateur Narrow Band Modes, see FMTAG Bandplan.

Channel 40 to 42 are used for low power television.

MOUNTAIN RADIO SERVICES IN NEW ZEALAND

In New Zealand the opportunity exists for many to take the hills. To help those who do so there are several Mountain Radio Services who hire lightweight mountain radios for people to communicate back to a town base or to other parties in the field. These mountain radio services are non-profit organizations who just charge sufficient for their services to cover their operating expenses.

The radios are single sideband and operate just below the 80m band on 3261kHz in the South Island and 3345kHz in the North Island. Many radios are also equipped to operate on the DoC National Park channels. The radios are used with a longwire half-wave dipole and with careful setting up are capable of communicating with the base stations from anywhere in the country.

The radios may be obtained from the following organizations:

Canterbury Mountain Radio Service—call-sign ZKIB, 2 Walker Street, PO Box 22-342, Christchurch www.mountainradio.co.nz. Telephone/Fax (03) 366-5241.

Central North Island Mountain Radio Service—call-sign ZKBY, 44 Rotokawa Street, Taupo. Telephone, Fax (07) 378-9676, (07) 386-6163.

Hawkes Bay Mountain Radio Service—call-sign ZLKU, 12 Upham Crescent, Taradale. Telephone (06) 844-2797.

Marlborough Mountain Radio Services Inc.—call-sign ZKMM, 64 Park Terrace, Blenheim. Telephone (03) 578-5311.

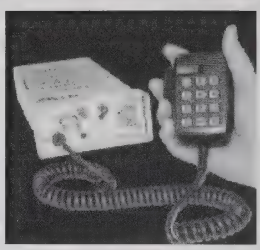
Northland Mountain Radio Service—call-sign ZKVS, PO Box 1410, Whangarei. Telephone (09) 437-5347.

Southland Field Radio—call-sign ZLFK, Mill Road South, RD 1, Southland. Telephone (03) 216-3751. Fax (03) 218-3305.

Wellington Mountain Radio Service—call-sign ZLJG, PO Box 30-519, Wellington. Telephone/Fax (04) 564-6929.

Contact with the base stations is made at fixed schedule times in the evening. For example, Canterbury 7.30pm, Southland 8.00pm. But many have a continuous watch during the day and emergency calls may be sent at any time. At scheduled times weather forecasts and messages are relayed to the field radio. It is not unusual to have 30 or more stations on the nets.

The principal hire radios are type MRS1 which were developed



and built by mountain radio personnel. These are supplemented by Codan 8332 and AWA TR-105 types.

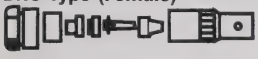
The Mountain Radio Services have been in operation now for over 25 years and it is recommended that those persons venturing into the mountains carry a mountain radio.

AT SEA SAFETY IS NO ACCIDENT

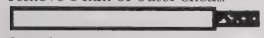
CHECK YOUR EQUIPMENT

COAXIAL PLUG ASSEMBLY

BNC Type (Female)



Step 1:
Cut end of cable evenly and remove 8 mm of outer sheat.



Step 2:
Side clamp nut and pressure sleeve over cable, and comb out braid.

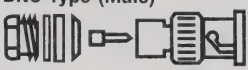
Step 3:
Fold braid back and insert ferrule between braid and dielectric. Trim off excess braid.

Step 4:
Remove 5 mm of dielectric without damaging centre conductor. Tin conductor.

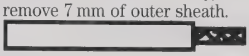
Step 5:
Slide rear insulator over conductor hard against rear insulator. Solder contact to conductor.

Step 6:
Fit front insulator in body and push sub-assembly onto body. Slide pressure sleeve into body and screw in the clamp nut to clamp cable.

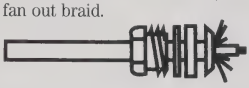
BNC Type (Male)



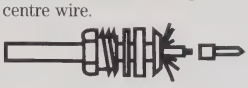
Step 1:
Cut end of cable evenly, and remove 7 mm of outer sheath.



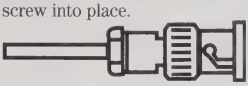
Step 2:
Slide clamp-nut, washer and rubber spacer over cable. Slide pressure sleeve over braid, and fan out braid.



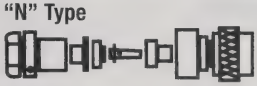
Step 3:
Fold back braid against pressure sleeve and trim off excess. Strip 4 mm of inside insulation off centre wire. Solder pin onto centre wire.



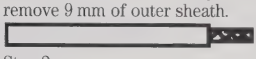
Step 4:
Fit assembly, pin first, into main receptacle. Push washer, rubber spacer and clamp nut up and screw into place.



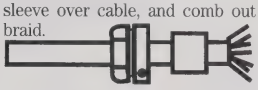
"N" Type



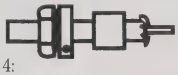
Step 1:
Cut end of cable evenly and remove 9 mm of outer sheath.



Step 2:
Slide clamp nut and pressure sleeve over cable, and comb out braid.



Step 3:
Fold braid back and insert ferrule between braid and dielectirc. Trim off excess braid and remove 5.5 mm dielectric without damaging inner conductor. Tin end of conductor.

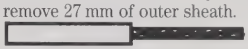


Step 4:
Slide rear insulator over conductor and position against end of dielectric. Slide contact over conductor until hard against rear insulator. Solder contact to conductor.

Step 5:
Fit front insulator in body and push sub-assembly into body. Slide pressure sleeve into body and screw in the clamp nut to clamp cable.

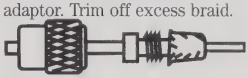
UHF Type

Step 1:
Cut end of cable evenly and remove 27 mm of outer sheath.

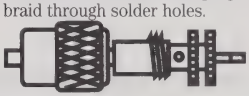


Step 2:
Slide coupling ring and adaptor onto sheath. Fan braid back over sheath.

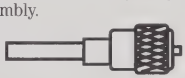
Step 3:
Compress braid around cable and position adaptor so braid fans over adaptor. Trim off excess braid.



Step 4:
Remove 12.5 mm dielectric and tin conductor. Screw the plug assembly onto cable and solder plug to braid through solder holes.



Step 5:
Solder conductor to centre pin and screw coupling ring onto assembly.



COAXIAL CABLE SPECIFICATIONS

Type	Nom. Imp Zo	Outer Dia (mm)	Nominal Attenuation (dB/100 m) 50 MHz	100 MHz	200 MHz	400 MHz	1 GHz	Vel Factor %	Cap pF/m	Volts Vrms
RG-8/U	52	10.3	5.2	7.2	10.5	15.4	29.2	66.0	96.8	5000
RG-9/U	51	10.67	5.2	7.2	10.5	15.4	29.2	66.0	67.3	5000
RG-11/U	75	10.29	4.3	6.6	9.5	13.8	22.3	66.0	67.3	5000
RG-58/U	53.5	4.95	10.2	14.8	22.3	32.8	55.8	66.0	93.5	1900
RG-58A/U	50	4.95	10.8	16.1	23.9	37.7	70.5	66.0	101.0	1900
RG-58C/U	50	4.95	10.8	16.1	23.9	37.7	70.5	66.0	101.0	1900
RG-59/U	73	6.15	7.9	11.2	16.1	23.3	39.4	66.0	68.9	2300
RG-59B/U	75	6.15	7.9	11.2	16.1	23.0	39.4	66.0	67.3	2300
RG-62/U	93	6.04	6.2	8.9	12.5	17.7	28.5	84.0	44.3	700
RG-62B/U	93	6.15	6.6	9.5	13.8	20.0	36.1	84.0	44.3	700
RG-122/U	50	4.06	14.8	23.0	32.8	49.9	87.0	66.0	101.0	1900
RG-141A/U	50	4.06	6.9	10.5	15.4	22.6	41.7	69.5	95.1	1900
RG-142B/U	50	4.95	8.9	12.8	18.4	26.9	44.3	69.5	95.2	1900
RG-174/U	50	2.56	21.7	29.2	39.4	57.4	98.4	66.0	101.0	1500
RG-178B/U	50	1.83	34.4	45.9	62.3	91.9	150.9	69.5	95.1	1000
RG-178B/U	75	2.54	27.9	32.8	41.0	52.5	78.7	69.5	64.0	1200
RG-180B/U	95	3.56	15.1	18.7	24.9	35.1	55.8	69.51	49.2	1500
RG-187A/U	75	2.66	37.9	32.8	41.0	52.5	78.7	69.5	64.0	1200
RG-188A/U	50	2.59	31.5	37.4	46.6	54.8	101.7	69.5	95.2	1200
RG-196A/U	50	1.93	34.4	45.9	62.3	91.9	150.9	95.2	1200	
RG-213/U	50	10.29	5.2	7.2	10.5	15.4	29.2	66.0	101.0	5000
RG-214/U	50	10.8	5.2	7.2	10.5	15.4	29.2	66.0	101.0	5000
RG-223/U	50	5.38	10.1	14.8	21.0	30.2	63.5	66.0	101.0	1900
RG-303/U	50	4.31	6.9	10.5	15.4	22.6	42.7	69.5	95.2	1900
RG-316/U	50	2.49	30.8	34.1	43.3	54.1	101.7	69.5	95.2	1200
BEL 9913	50	10.29	3.0	4.5	5.9	8.5	14.8	84.0	78.7	—

NB: Except for Belden 9913, all specifications are referenced to MIL-C-17D/F or JAN-C-17A as applicable.

COMMONLY USED SYMBOLS AND ABBREVIATIONS

A

A	ampere, amplification factor
AC	alternating current
A/D	analogue-to-digital
AF	audio frequency
afc	automatic frequency control
afsk	audio frequency shift keying
agc	automatic gain control
Ah	ampere hour
alc	automatic load (or level) control
AM	amplitude modulation
a.m.	morning
AMSAT	Radio Amateur Satellite Corporation
AMTOR	Amateur Teleprinting Over Radio
anl	automatic noise limiter
ant	antenna
AOS	acquisition of signal
ARA	Amateur Radio Association
ARC	Amateur Radio Club
AREC	Amateur Radio Emergency Corps
ARS	Amateur Radio Society; Amateur Radio Station
ASCII	American National Standard Code for Information Interchange
ATV	amateur television
avc	automatic volume control
AWG	American wire gauge
az-el	azimuth-elevation

B

B	flux density; susceptance
BASIC	Beginner's All-purpose Symbolic Instruction Code (computer language)
b	byte (a group of bits or binary digits, usually eight)
bc	broadcast
BCD	binary-coded-decimal
BCI	broadcast interference
bcl	broadcast listener
bd	baud (bits/sec)
ber	bit error rate
bit	binary digit
BFO	beat-frequency oscillator
bpf	band pass filter
bw	bandwidth
byte	computer word, 8 bits

C

C	Celsius, capacity, Coulomb
c	velocity of EM waves
CATV	cable television
CB	citizens band
CCIR	International Radio Consultative Committee
CCIT	Consultative Committee for International Telegraph and Telephone (ITU)
CCS	constant current source
cctv	closed circuit television
ccw	coherent CW; counter-clockwise
CD	Civil Defence
Ch	channel
cm	centimetre
CMOS	(or COSMOS)—complimentary-symmetry metaloxide semiconductor
coax	coaxial cable or connector
COR	carrier-operated relay
CPU	central processing unit
CQ	general call to all stations
CRT	cathode-ray tube
ct	centre tap
CTCSS	continuous tone coded squelch system
CW	continuous wave (code); clockwise

D

D	electrostatic displacement; flux density
D/A	digital-to-analogue
dB	decibel
dBd	antenna gain referenced to a dipole
DBDM	double-balance diode mixer
dBi	antenna gain referenced to an isotropic, a dipole has a gain of 2.14 dBi
dBm	decibel referred to 1 milliwatt
dBW	decibel referred to 1 watt
DC	direct current
det	detector
DF	direction finder; direction finding
DIP	dual-in-line package, 14 to 16 pins
dpdt	double-pole double-throw
dpst	double-pole single-throw
dsb	double sideband
DTL	diode-transistor logic
DTMF	dual tone multi-frequency
DVM	digital voltmeter
DX	long distance
DXCC	DX Century Club

E

E	voltage
e	base of Naperian logs
ECL	emitter-coupled logic
ECO	electron-coupled oscillator
EHF	extra high frequency (30– 300 GHz)
EHT	extra high tension
eirp	effective isotropic radiated power
EMC	electro-magnetic capability
E-M-E	earth-moon-earth (moonbounce)
emf	electromotive force (voltage)
EMI	electro-magnetic interference
EMP	electromagnetic pulse
EPROM	erasable programmable read-only memory
EUV	extreme ultra-violet radiation
EQX	equator crossing
erp	effective radiated power

F

f	frequency
F	farad; Fahrenheit
FAX	facsimile
FCC	Federal Communications Commission
FD	Field Day
FET	field-effect transistor
FF	flip-flop
FM	frequency modulation
FMT	frequency measuring test
FMTAG	Frequency Management Technical and Advisory Group
fot	optimum working frequency
fsd	full scale deflection
FSK	frequency-shift keying

G

g	gram
G	giga (109); conductance; magneto motive force
GaAs FET	gallium arsenide field-effect transistor
GDO	grid-dip or gate-dip oscillator
GHz	gigahertz
gnd	ground

H

H	henry; magnetic field strength
HAAT	height above mean terrain
HF	high frequency (3–30 MHz)
HFO	heterodyne-frequency oscillator
hpf	highest possible frequency; high pass filter
HT	high tension
Hz	hertz

I

I	current
IARU	International Amateur Radio Union
IC	integrated circuit
i-d	identification; identifier
ID	inside diameter
IF	intermediate frequency
IMD	inter-modulation distortion
I/O	input/output
IRC	international reply coupon
ISB	independent sideband
ITU	International Telecommunication Union
IW	Intruder Watch (Monitoring Service)

J

J	Joule
j	indicator for reactive component of an impedance; (+j inductive; –j capacitive); joule
JFET	junction field-effect transistor

K

k	kilo (1000)
K	kilobyte; specific inductive capacity; Kelvin; dielectric constant
kg	kilogram
kHz	kilohertz (103)
km	kilometre
kV	kilovolt
kW	kilowatt
kWh	kilowatt hour

L

L	self inductance
LC	inductance-capacitance
LCD	liquid crystal display
LED	light-emitting diode
LF	low frequency (30–300 kHz)
lhcp	left-hand circular polarisation
LMO	linear master oscillator
LO	local oscillator
loran	long-range navigation
LOS	loss of signal
lp	long periodic; long path
LSB	lower sideband; least signifcant bit
LSI	large-scale integration
LT	low tension
luf	lowest usable frequency
lw	longwave; long wire

M

m	metre (distance or band); milli (10^{-3}); mass
M	mega (10^{6}); mutual inductance
mA	milliampere (one-thousandth of an Amp)
mAH	milliampere hour
MARS	Military Affiliate Radio System
MATV	multi-access television
MF	medium frequency (300–3000 kHz)
mH	millihenry
MHz	megahertz (106)
mike; mic	microphone
mini-DIP	dual-in-line package of 8 pins
mi/h	miles per hour
mi/s	miles per second
mix	mixer
mm	millimetre
MO	master oscillator
MOS	metal oxide semiconductor
mod	modulator
modem	modulator/demodulator
MOX	manually operated switching
ms	millisecond
m.s.	meteor scatter
m/s	metres per second
MSB	most significant bit
MSI	medium-scale integration
MSTV	medium-scan television
MUF	maximum usable frequency
MUX	multiplex; multiplexer
mV	millivolt
mW	milliwatt

N

N	modulation factor
n	nano (10–9)
nbfm	narrow-band frequency modulation
nbvm	narrow-band voice modulation
n.c.	no connection
NC	normally closed
NF	noise figure
NiCad	nickel cadmium
NL	noise limiter
NMOS	n-channel MOS
NO	normally open
npn	negative-positive-negative
nS	nanosecond
NZART	New Zealand Association of Radio Transmitters

O

OD	outside diameter
OM	old man
op amp	operational amplifier
osc	oscillator
OSCAR	Orbiting Satellite Carrying Amateur Radio
OTC	Old Timers' Club
oz	ounce

P

p	pico (10–12)
P	power
PA	power amplifier; public address system
PAM	pulse amplitude modulation
PCB	printed (or etched) circuit board
PCM	pulse code modulation
PEP	peak envelope power
pF	picofarad
ph	phone
PIN	positive intrinsic negative
PIV	peak inverse voltage
pk	peak
pk-pk	peak to peak
PLL	phase-locked loop
PM	phase modulation
p.m.	afternoon/night
PMOS	p-channel MOS
pnp	positive-negative-positive
ppi	plan position indicator (radar)
pot	potentiometer
PROM	programmable read-only memory
PRV	peak reverse voltage
PSK	phase-shift keying
PTO	permeability-tuned oscillator
PTT	push-to-talk
PSU	power supply unit

Q

Q	figure of merit (tuned circuits); charge; quantity
QRP	low power (less than 10 watts input)
QTHR	address correct in *Call Book*

R

R	resistance
RAM	random access memory
R/C	radio control
R-C	resistor-capacitor
rcvr	receiver
rev/min	revolutions per minute
RF	radio frequency
RFC	radio-frequency choke
RFI	radio-frequency interference
rhcp	right-hand circular polarisation
RI	Radio Inspector
RIT	receiver incremental tuning
RLC	resistor, inductance, capacitor network
rms	root-mean-square
RO	Radio Officer
ROM	read-only memory
rptr	repeater
RS	Radiosport Satellite (USSR)
RSGB	Radio Society of Great Britain
RST	readability-strength-tone
RT	radiotelephone
RTL	resistor-transistor logic
RTTY	radioteletype
Rx	receiver

S

S	second; magnetic reluctance; Siemens
SAE	self-addressed envelope
SASE	stamped SAE
SCR	silicon-controlled rectifier
SHF	super-high frequency (3–30 GHz)
SINAD	Ratio of Signal to Noise and Distortion
SM	silver mica (capacitor)
SNR; S/N	signal-to-noise ratio
spdt	single-pole double-throw
spst	single-pole single-throw
SS	sweepstakes; spread spectrum
SSB	single sideband
SSC	AMSAT Phase III special service channels
SSI	small-scale integration
SSTV	slow-scan television
STSP	short-term special purpose (FM repeaters)
SWL	shortwave listener
SWR	standing-wave ratio
sync	synchronous; synchronising
SYNCART	synchronous satellite carrying Amateur Radio Transponder

T

t	time; temperature C
T	period; temperature K
TA	technical adviser
TCA	time of closest approach
TE	trans-equatorial (propagation)
tfc	traffic
THz	tetrahertz (1012)
THD	total harmonic distortion
tpi	turns per inch
T-R	transmit-receive
TTL; T2L	transistor-transistor logic
TTY	teletypewriter (from Teletype, the trade mark of Teletype Corporation)
TV	television
TVI	television interference
Tx	transmitter

U

UHF	ultra-high frequency (300–3000 MHz)
UJT	uni-junction transistor
UoSAT	University of Surrey educational/research satellite (Great Britain)
USB	upper sideband
UTC	Universal Co-ordinated Time
uV	ultra-violet light

V

V	volt; voltage
VA	Volt-Ampere
VCO	voltage-controlled oscillator
VCR	video cassette recorder
VCXO	voltage-controlled crystal oscillator
VFBO	variable-frequency beat oscillator
VFO	variable frequency oscillator
VHF	very-high frequency (30–300 MHz)
VLSI	very large scale integration
VOM	volt-ohm-milliammeter
VOX	voice-operated switching
VR	voltage regulator
VSWR	voltage standing-wave ratio
VTVM	vacuum-tube voltmeter
VU	volume unit
VXO	variable crystal oscillator

W

W	watt; work
WAC	Worked All Continents
WARC	World Administrative Radio Conference
WAS	Worked All States
wbfm	wide-band FM
Wh	watt-hours
wpm	words per minute
ww	wire wound; wire wrap
wx	weather

X

X	reactance; electrostatic field strength
xcvr	transceiver
XO	crystal oscillator
xfmr	transformer
xmtr	transmitter
xtal	crystal
XYL	wife

Y

Y	admittance
YF	wife
YL	young lady or lady operator

Z

Z	impedance; UTC time

Conversion Factors (Metric-Imperial)

1 millimetre (mm)	= 0.03937 inch
1 centimetre (cm) = 10mm	= 0.3937 inch
1 metre (m) = 100cm	= 39.37 inches, 3.28 feet, 1.094 yards
1 kilometre (km) = 1000m	= 3280.8 feet, 1094 yards, 0.621 miles
1 gram (g) = 1000mg	= 0.03574 ounces
1 kilogram (kg) = 1000g	= 2.2046 pounds
1 tonne (t) = 1000kg	= 0.98 ton, 2204.6 pounds
1 cubic centimetre (cm^3) = 1000mm^3	= 0.6102 cubic inches
1 cubic metre (m^3)	= 35.3 cubic feet, 1.3 cubic yards
1 litre (l)	= 0.220 imperial gallons, 0.264 US gallons
1 kilopascal (kP)	= 0.145 lbs/sq. inch, 0.009867 atmospheres
1 kilojoule (kJ)	= 0.948 BTU, 0.239 kilocalories, 737.56ft/lb
1 kilowatt (kW)	= 1.34 horsepower, 73.7ft.lb/sec
1 Newton (N)	= 0.2248lb force
1 Tesla (T)	= 10,000 gauss
1 Weber (W)	= 10^8 Maxwell

Prefixes for Multiples and Sub-multiples of Quantities

Multiple or Sub-multiple	Name	Prefix
10^{12}	Tera	T
10^9	Giga-	G
10^6	Mega-	M
10^3	Kilo-	k
10^2	Hecto	h
10	Deca	da
10^{-1}	Deci	d
10^{-2}	Centi-	c
10^{-3}	Milli-	m
10^{-6}	Micro-	μ
10^{-9}	Nano-	n
10^{-12}	Pico-	p
10^{-15}	Femto	f
10^{-18}	Atto-	a

Preferred Number Series

(a) 10% Tolerance E12

10 12 15 18 22 27 33 39 47 56 68 82

(b) 5% Tolerance E24

10 11 12 13 15 16 18 20 22 24 27 30

33 36 39 43 47 51 56 62 68 75 82 91

DC resistance of conducting materials relative to copper

Material	Resistance Ratio	Material	Resistance Ratio
Aluminium	1.6	Nichrome	63.0
Brass	3.8	Nickel	4.1
Cadmium	4.1	Phosphor Bronze	6.7
Chromium	12.0	Platinum	6.4
Copper	1.0	Silver	0.97
Gold	1.4	Stainless Steel	43.0
Iron	5.9	Tin	6.6
Lead	12.0	Zinc	3.6

Useful Formulae

- Wavelength (in metres)
  Free space = 300/f(MHz)
  Half-wave wire dipole = 143/f(MHz)
- Resonant frequency of an LC circuit
  $f = 0.159155/\sqrt{(LC)}$
- The quality factor or Q of a circuit at resonance is
  $Q = 2\pi f L/r$
- The 3 dB bandwidth of such a single tuned circuit
  B = f(res)/Q
- Estimate of transformer rating
  Output = 31 A^2 Watts
  where A = core cross-section in sq.ins.
  or Output = 4.8 A^2 Watts if A is in sq.cm.

Ohms Law

$V = IR = W/I = \sqrt{WR}$

$I = V/R = W/V = \sqrt{W/R}$

$R = V/I = V^2/W = W/I^2$

$W = VI = I^2 R = V^2/R$

Mains Plug Wiring

Phase	Brown	Red
Neutral	Blue	Black
Earth	Green/Yellow	Green

Average, Peak, RMS Values

	Multiplication factor for sine wave			
	Average	RMS	Peak	Peak-Peak
Average	—	1.1133	1.573	3.143
RMS	0.933	—	1.414	2.828
Peak	0.637	0.7073	—	2.033
Peak-Peak	0.323	0.3535	0.533	—

Colour Codes

Tantalum Capacitors

Top/Middle band: Value in μF (2 digits)

Middle Spot: Multiplier

Bottom band: Maximum voltage

Colour	Value	Multiplier	Voltage
Black	0	×1	10.0
Brown	1	×10	1.6
Red	2	×100	0.4
Orange	3	×1k	40.0
Yellow	4	×10k	6.3
Green	5	×100k	16.0
Blue	6		20.0
Violet	7	×0.0001	
Grey	8	×0.01	25.0
White	9	×0.1	2.5

Capacitors

Top band: First digit of value

Second band: Second digit of value (gives value in pF)

Third band: Multiplier

Fourth band: Tolerance—White 10%, Black 20%

Bottom Band: Voltage

Resistors

Bands from closest to lead:

First digit of value

Second digit of value

Multiplier

Tolerance

Colour	Value	Multiplier	Tolerance
Black	0	×1	
Brown	1	×10	1%
Red	2	×100	2%
Orange	3	×1 k	
Yellow	4	×10 k	
Green	5	×100 k	
Blue	6	×1 M	
Violet	7	×10 M	
Grey	8		
White	9		
Gold			5%
Silver			10%
No band			20%

Notes

1. 1% tolerance resistors have five bands. The first three give three digits of value, the rest as above.
2. Bands are closer to one end of the resistor. Read bands in sequence from this end.

Hexadecimal Constants

Hex Code	Most Significant Bytes		Least Significant Bytes	
0	0	0	0	0
1	4096	256	16	1
2	8192	512	32	2
3	12288	768	48	3
4	16384	1024	64	4
5	20480	1280	80	5
6	24567	1536	96	6
7	28672	1792	112	7
8	32768	2048	128	8
9	36864	2304	144	9
A	40960	2560	160	10
B	45056	2816	176	11
C	49152	3072	192	12
D	53348	3328	208	13
E	57344	3584	224	14
F	61440	3840	240	15

HEX TO DECIMAL CONVERSION
Decimal Value = IV + III + II + I

ASCII Character Codes as defined in ANSI X3.4

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
0	0	NUL	32	20	SPACE	64	40	@	96	60	—
1	1	SOH	33	24	!	65	41	A	97	61	a
2	2	STX	34	22	“	66	42	B	98	63	b
3	3	ETX	35	34	#	67	43	C	99	63	c
4	4	EOT	36	24	$	68	44	D	100	64	d
5	5	ENQ	37	25	%	69	45	E	101	65	e
6	6	ACK	38	26	&	70	46	F	102	66	f
7	7	BEL	39	27	‘	71	47	G	103	67	g
8	8	BS	40	28	(	72	48	H	104	68	h
9	9	HT	41	29	)	73	49	I	105	69	i
10	A	LF	42	2A	*	74	4A	J	106	6A	j
11	B	VT	43	2B	+	75	4B	K	107	6B	k
12	C	FF	44	2C	,	76	4C	L	108	6C	l
13	D	CR	45	2D	-	77	4D	M	109	6D	m
14	E	SO	46	2E	.	78	4E	N	110	6E	n
15	F	SI	47	2F	/	79	4F	O	111	6F	o
16	10	DLE	48	30	0	80	50	P	112	70	p
17	11	DC1	49	31	1	81	51	Q	113	71	q
18	12	DC2	50	32	2	82	52	R	114	72	r
19	13	DC3	51	33	3	83	53	S	115	73	s
20	14	DC4	52	34	4	84	54	T	116	74	t
21	15	NAK	53	35	5	85	55	U	117	75	u
22	16	SYN	54	36	6	86	56	V	118	76	v
23	17	ETB	55	37	7	87	57	W	119	77	w
24	18	CAN	56	38	8	88	58	X	120	78	x
25	19	EM	57	39	9	89	59	Y	121	79	y
26	1A	SUB	58	3A	:	90	5A	Z	122	7A	z
27	1B	ESC	59	3B	;	91	5B	[	123	7B	{
28	1C	FS	60	3C	<	92	5C	\	124	7C	|
29	1D	GS	61	3D	=	93	5D	]	125	7D	}
30	1E	RS	62	3E	>	94	5E	→	126	7E	–
31	1F	US	63	3F	?	95	5F	_	127	7F	DEL

ASCII Control Codes

NUL	(Ctrl @)	Null	DLE	(Crtl P)	Data Link Escape
SOH	(Ctrl A)	Start of Heading	DC1	(Ctrl Q)	Device Control 1
STX	(Ctrl B)	Start of Text	DC2	(Ctrl R)	Device Control 2
ETX	(Ctrl C)	End of Text	DC3	(Ctrl S	Device Control 3
EOT	(Ctrl D)	End of Transmission	DC4	(Ctrl T)	Device Control 4
ENQ	(Ctrl E	Enquiry	NAK	(Ctrl U)	Negative Acknowledge
ACK	(Ctrl F)	Acknowledge	SYN	(Ctrl V	Synchronous Idle
BEL	(Ctrl G)	Bell	ETB	(Ctrl W)	End of Transmission Block
BS	(Ctrl H)	Back Space	CAN	(Ctrl X)	Cancel
HT	(Ctrl I)	Horizontal Tab	EM	(Ctrl Y)	End of Medium
LF	(Ctrl j)	Line Feed	SUB	(Ctrl Z)	Substitute
VT	(Ctrl K)	Vertical Tab	ESC	(Ctrl [)	Escape
FF	(Ctrl L)	Form Feed	FS	(Ctrl \)	File Separator
CR	(Ctrl M)	Carriage Return	GS	(Ctrl })	Group Separator
SO	(Ctrl N)	Shift Our	RS	(Ctrl ^)	Record Separator
SI	(Ctrl O)	Shift In	US	(Ctrl _)	Unit Separator

The RS-232C Interface

The basic RS-232C Electrical specifications

Communication rate:
0–20,000 bits per second

Driver output voltage levels, maximum no load:
–25 Untitled-2 logic 1, + 25 V logic Ø

Driver output voltage ranges for loads between 3 k and 7 k Ohms:
Logic 1: 15 V (7 k) and –5 V (3 k)
Logic Ø: + 15 V (7 k) and + 5 V (3 k)

Driver output current, short circuit:
500 mA maximum

Driver output impedance with power off:
300 Ω minimum

Maximum driver output slew rate:
30 V per microsecond

Receiver input resistance:
7 kΩ maximum
3 kΩ minimum

Effective receiver input capacitance:
2500 pF maximum

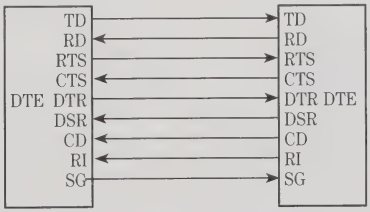
Maximum receiver input voltage range:
– 25 V to + 25 V

The following table shows the nine most common signals used for serial communications and their PIN allocations for nine and 25 PIN connectors:

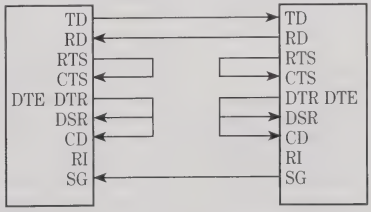
Signal Name		PIN No. (9 pin)	PIN No. (25 pin)
TD	Transmitted Data	3	2
RD	Received Data	2	3
RTS	Request To Send	7	4
CTS	Clear To Send	8	5
DSR	Data Set Ready	6	6
SG	Signal Ground	5	7
CD	Carrier Detect	1	8
DTR	Data Terminal Ready	4	20
RI	Ring Indicator	9	22

Common RS-232C Connections

Each signal (except ground) is either an input or an output depending whether it is on the Data Terminal Equipment (DTE) (eg, a computer terminal) or the Data Circuit Terminating Equipment (DCE) (eg, a modem). A typical connection is shown below.



When two computer terminals (DTEs) are connected together, a “null modem” hook-up is needed to fool each DTE into thinking that it is connected to DCE. A typical null modem connection is shown below.



BASIC AND DERIVED SI UNITS—CONVERSION FACTORS

Basic SI Units

Quantity	Name of unit	Unit symbol
Electric current	ampere	A
Length	metre	m
Luminous intensity	candela	cd
Mass	kilogramme	kg
Thermodynamic temperature	degree Kelvin	°K
Time	second	s

Derived SI Units

Physical quantity	SI unit	Unit symbol
Electric capacitance	farad	F = A s/V
Electrical charge	coulomb	C = A s
Electrical potential	volt	V = W/A
Electric resistance	Ohms	Ω = V/A
Force	Newton	N = kg m/s^2
Frequency	Hertz*	HZ = s^{-1}
Illumination	lux	lx = lm/m^2
Inductance	Henry	H = V s/A
Luminous flux	lumen	lm = cd sr
Magnetic flux	Weber	Wb = V s
Magnetic flux density	Tesla†	T = Wb/m^2
Power	Watt	W = J/s
Work energy, quantity of heat	joule	J = N m

*Hertz is equivalent to cycle per second.
†Tesla is equivalent to Weber per square metre.

Conversion factors

To convert	into	Multiply by	Conversely
Amp hours	Coulombs	3600	2.778×10^{-4}
Atmospheres	Lb/sq.in	14.70	0.068
Centigrade	Kelvin	°C+273 = °K	°K – 273 = °C
Cubic inches	Cubic feet	5.787×10^{-4}	1728
Cubic inches	Cubic metres	1.639×10^{-5}	6.102×10^{4}
Degrees	Radians	1.754×10^{-2}	57.3
Dynes	Pounds	2.248×10^{-6}	4.448×10^{5}
Ergs	Foot pounds	7.376×10^{-8}	1.356×10^{7}
Feet	Centimetres	30.48	3.281×10^{-2}
Foot pounds	Kilowatt hours	3.766×10^{-7}	2.655×10^{6}
Gausses	Lines per sq.in.	6.452	0.155
Grams	Dynes	980.7	1.02×10^{-3}
Grams per cm	Pounds per in	5.6×10^{-3}	178.6
Horsepower	Kilowatts	0.746	1.341
Inches	Centimetres	2.54	0.3937
Kilograms	Pounds (lb)	2.205	0.454
Kilometres	Feet	3281	3.048×10^{-4}
Kilometres	Nautical miles	0.540	1.853
Kilometres	Statute miles	0.621	1.609
Kilowatt hours	Joules	3.6×10^{6}	2.778×10^{-7}
Kilowatt hours	HP hours	1.341	0.7457
Knots	Miles per hour	1.1508	0.869
Lamberts	Candles per sq.cm	0.3183	3.142
Lamberts	Candles per sq.in	2.054	0.4869
Lumens per sq.ft	Foot candles	1	1
Lux	Foot candles	0.092892	10.764
Metres	Feet	3.28	10.764
Metres	Yards	1.094	0.9144
Miles per hour	Feet per second	1.467	0.68182
Nepers	Decibels	8.686	0.1151
Tons	Pounds	2240	4.464×10^{-4}
Watts	Ergs per second	10^{7}	10^{-7}

Ten Most Common Tower Building Mistakes

by STEVE MORRIS K7LXC

After working on over 100 amateur radio tower and antenna systems over the last 15 years, I have seen many problems and failures that could have, and should have, been avoided. By not making these mistakes, you can make your tower and antenna system safer and more reliable. It'll even let sleep at night better.

1. Not following the manufacturer's specifications

Commercially manufactured towers have to comply with current standards for wind loading and structural integrity. Licensed Professional Engineers (PEs) design the towers and make the calculations to make them safe. If you don't follow their specs at a minimum, the tower will not take the stresses and loads that it is subject to. In other words, it'll probably fail.

2. Overloading

This is the most common reason for amateur tower failure. The first thing you need to know to plan and build a tower and antenna system is what the wind speed rating for your country is. Next, you need the manufacturer's specifications for that wind speed. Then you must not exceed the wind load rating based on these factors. This is even more important for crank-up towers. Refer also to number 1.

3. Underestimating wind forces

Wind pressure on a tower and antenna can be tremendous. Unless you've been up on a tower during a windstorm to feel the pressure and the forces, it's difficult to appreciate how significant they are. Increases in wind pressure are not linear, they are geometric.

4. Not building to the wind speed rating for the county

While many counties are only rated for 70 mph winds, many other counties have rating much higher, up to 115 mph. Find out what the wind speed rating is for your county, or your specific location, and use that as the minimum design parameter for your tower and antenna system. See also numbers 1 and 3 above.

5. Using the wrong mast for the job

Medium to large sized HF beams can put huge stresses on your mast. Know the difference between pipe and tubing as well as the pressure that your antenna system will put on the mast (tubing is generally acceptable, pipe is not). Then you can make sure that your mast will not bend or break in a big windstorm.

6. Not having the guy wire tensioned properly

Proper guy wire tension is a critical part of a tower's ability to handle wind stresses. Having the wrong tension can be like driving your car with over- or under-inflated tyres: it is potentially dangerous and is not the proper specification from the manufacturer. Find out the proper tension for your installation and tension them correctly.

7. Not having a proper ground system

A good ground system is necessary not only for lightning protection but also for minimizing RFI to adjacent electronic devices.

8. Not doing an annual inspection

Your tower and antennas system is in a constant state of deterioration. While it may be a slow process, it is going on continually. The best way to find and fix small problems before they grow into big problems and potential calamities is by doing an annual inspection.

9. Not fitting the tower sections on the ground

Tower sections, new or used, may not fit easily together. It's much easier to correct alignment problems on the ground rather than up on the tower.

10. Using the wrong hardware

Since tower and antenna materials are in a constant state of deterioration, you should only use hardware that minimizes corrosion. Galvanized or stainless steel materials are the only ones that will survive outdoor use reliably. Using the wrong hardware includes using non-closed-eyebolts. Use only forged or welded eyebolts since the wrong type can open up accidentally with disastrous results.

Derek Fortune ZL1UF (B.Sc.) presents some useful pointers on this popular and rewarding pastime.

Construction of one's own electronics project was once a mighty undertaking. Several tubes and a bulky power supply were required to achieve almost any logic or amplifier function. Enter silicon . . . no longer the case!

"Building block" integrated circuits make easy the realization of ideas like a precise, linear, voltage-to-frequency converter. These devices were limited to the realms of theoreticians less than 20 years ago. How about a preamp device having a flat 20 dB gain and low noise from DC to over 2 GHz. It operates from almost any power supply voltage (change one resistor) and costs less than $10! The choice of project or device you might construct is almost limitless—test gear, home stereo and appliance control devices, projects for the car or boat, projects for the radio shack.

Choice of project

The classic beginners' text on electronics will describe several radio receivers, ranging upwards from the crystal set. Receiver projects are still very popular, and an amateur band transceiver project leads the licensed constructor into QRP (low power) operation. However, many people look towards something different. Magazines are forever spitting out new ideas for projects to build—whether you attempt a crystal set or a computer, there is a thrill in using the equipment you had a hand in making that is not available from the purchase of commercial, branded gear. You cannot help but teach yourself about electronics as you study someone else's circuit and explanations and then recreate it under your own conditions.

Not every project works from the first power-up; but the understanding of the project grows rapidly as the fault-finding technique progresses. If you cannot solve the problem yourself, you can usually find assistance from friends, clubs, or the project author as to finding the problem. Most authors are only too happy to discuss their project on the telephone, or in person. Letters like "it doesn't work, what can I do?" are much more difficult to answer. Interactive discussions allow the author to pose questions, and the two parties can converge on a likely solutioln.

Sources of designs

Magazines are definitely the best sources of varied, up-to-date projects. Nowadays *Silicon Chip* is probably one of the best publication available in this part of the world for a wide range of constructional articles for every purpose and skill level. Several European magazines have also run for years producing similar piles of potential projects. *QST* (published by the ARRL) and a host of other national amateur radio associations' magazines offer projects more selected toward the amateur fraternity. In New Zealand *Break-In* offers some excellent articles. If you have a pet project of your own design working well, get writing! Be sure to include a PCB layout with your article. Do contact a component supplier for details on currently available components before finalizing your design.

Many magazines of this nature are available through libraries. Some, like the Auckland University Engineering School Library, keep bound volume sets of each year's issues of many of these periodicals. Public libraries also keep desk copies available for reference use. Photocopiers are available in all these places for public use.

The annual index is usually included with the December issue of each magazine, so searching for articles on a given topic becomes quite easy. Radio Club libraries also can offer collections of books and magazines to the newcomer.

Choosing designs from Australasian magazines by preference is likely to give the least problems with obtaining components. Some European magazines especially are prone to use components which are very hard to get in New Zealand. More about this below.

Obtaining components in New Zealand

The Dick Smith chain still offers some discrete electronic components. However the range seems to be decreasing steadily.

Contact other local amateurs if you are looking for a component supplier in your region.

Printed Circuit Boards

PCBs for projects in many magazines are available. Marday Services in Auckland offers the PCBs for a number of *Electronics Today International* projects, as well as *Electronics Australia* and others. You can save a lot of time and trouble, especially if you are new to electronics, by obtaining the PCB to go with the published diagrams.

Construction techniques

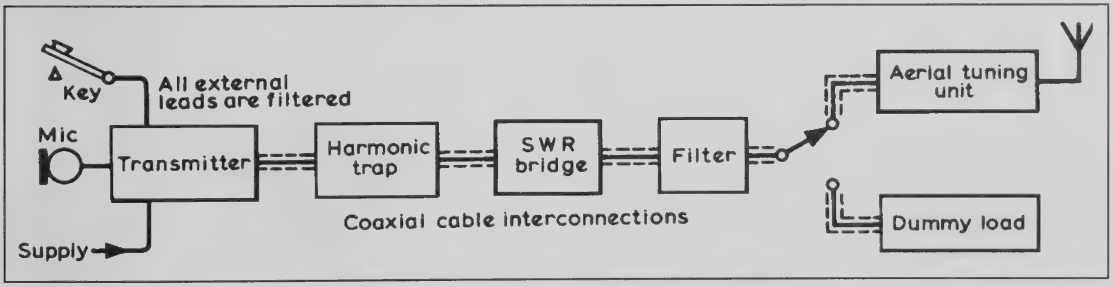
Beginning constructors are well advised to obtain a copy of the *ARRL Handboook*. This monstrous text is probably the single best book anywhere to introduce the enthusiast to every part of amateur radio and contains a chapter on construction techniques. Tools and hardware, soldering and metalwork are described in detail in this chapter. Good soldering technique and care of the soldering iron is very important as you progress beyond your first projects. Most tables you will ever need in amateur radio, from drill sizes to low-pass filter component values are contained in this mighty tome.

AC wiring technique needs to be given special attention in countries like ours which employ nearly the highest mains voltage in the world.One hundred and seventeen volts AC usually gives you a shock you can feel—but 230 V on the other hand, and a good earth on the other, is quite likely to give you something to remember, if you live to remember it at all! Do not use the nearest convenient piece of wire when connecting the mains input wiring for your project. Hookup wire with the normal thin insulation is NOT SAFE for use at 230 V. Avoid odd colours too—the use of conventional colours for mains wiring is strongly recommended. Brown should be used for Phase and blue for Neutral: then you can keep red and black for low voltage rails.

Ordinary three-core power flex is easy to split with a sharp hobby knife drawn along the cable from one end. Pull out the three wires and tear the jacket away from them. In this way you can tear along a length of cable for as much wire as required. This technique yields three correctly coloured, well-insulated, AC-rated wires, perfectly suited to the internal AC wiring required for the project.

Plastic sleeving, or even better, heat-shrink tubing, is easy to fit to the few connections that really matter in most projects. Heat-shrink tubing is available in short lengths in several colours and can be shrunk by several methods apart from the usual gun. Take the time over little things like these, and then you need not fear investigating the equipment whilst it is operating.

Keeping clear when the power is first turned on is not the point. If you make a wiring mistake, you will find it hard to spot if you have used red wire for all connections. You may discover it later; if you put the oscilloscope ground on the red wire going to earth for some reason, you may find it is actually the red wire going to Phase when the clip explodes between your fingers! (The scenario here is imaginary, but someone did do something very similar with my work 'scope once!)



Suggested layout of equipment for minimum spurious radiation.

ITU CLASSES OF EMISSION CODE

The basic characteristics of radio emissions are usually given in a three symbol group, such as A1A for Morse code.

These symbols are arrived at as follows:

First symbol—type of modulation of the main carrier.

Second symbol—nature of signal(s) modulating the main carrier.

Third symbol—type of information to be transmitted.

Modulation used only for short periods and incidental purposes, such as identification, may be ignored.

1. First symbol—type of modulation of main carrier

1.1	Emission of an unmodulated carrier	N
1.2	Emission in which the main carrier is amplitude modulated, including angle-modulated sub-carriers—	
1.2.1	Double-sideband	A
1.2.2	Single-sideband, full carrier	H
1.2.3	Single-sideband, reduced or variable carrier	R
1.2.4	Single-sideband, suppressed carrier	J
1.2.5	Independent sidebands	B
1.2.6	Vestigial sideband	C
1.3	Emission in which the main carrier is angle-modulated—	
1.3.1	Frequency modulation	F
1.3.2	Phase modulation	G
1.4	Emission in which the main carrier is amplitude and angle-modulated either simultaneously or in a pre-established sequence	D
1.5	Emission of pulses—	
1.5.1	Sequence of unmodulated pulses	P
1.5.2	A sequence of pulses—	
1.5.2.1	Modulated in amplitude	K
1.5.2.2	Modulated in width/duration	L
1.5.2.3	Modulated in position/phase	M
1.5.2.4	In which the carrier is angle-modulated during the period of the pulse	Q
1.5.2.5	Combination of the above	V
1.6	Cases not covered above in which an emission consists of the main carrier modulated in a combination of angle, amplitude, or pulse	W
1.7	Cases not otherwise covered	X

2. Second symbol—nature of signals modulating the main carrier—

2.1	No modulating signal	0
2.2	A single channel containing quantized or digital information, without the use of modulating sub-carrier*	1
2.3	A single channel containing quantized or digital information, with the use of a modulating sub-carrier*	2
2.4	Single channel containing analogue information	3
2.5	Two or more channels containing quantized or digital information	7
2.6	Two or more channels containing analogue information	8
2.7	Composite system with quantized or digital information together with analogue information	9
2.8	Cases not otherwise covered	X

*This excludes time-division multiplex.

3. Third symbol—type of information to be transmitted

3.1	No information transmitted	N
3.2	Telegraphy—for aural reception	A
3.3	Telegraphy—for automatic reception	B
3.4	Facsimile	C
3.5	Data transmission, telemetry, telecommand	D
3.6	Telephony—including sound broadcasting	E
3.7	Television (video)	F
3.8	Combination of above	W
3.9	Cases not otherwise covered	X

For a more complete description, the three symbol group may be preceded by a four symbol group representing the necessary bandwidth. This group must comprise three numerals and one letter, which must be H, K, M, or G. The letter is placed at the position of the decimal point in the number denoting the bandwidth in hertz, kilohertz, megahertz or gigahertz respectively.

The calculation of necessary bandwidths is complicated and only a few examples can be covered here. For CW Morse, the baud rate is 0.8 times the words per minute. The bandwidth is three or five times the baud rate, depending on the absence or presence of QSB. SSB Phone is just the highest modulating frequency. Double it for AM. FSK, RTTY (any code) is the baud rate plus 1.2 times the frequency shift.

Optionally, two more symbols may be added to the basic characteristics of emissions.

The optional additional characteristics are:

Fourth symbol—details of signal(s).

Fifth symbol—nature of multiplexing.

1. Fourth symbol—details of signal(s)

1.1	Two-condition code with elements of differing numbers and/or durations	A
1.2	Two-condition code with elements of the same number and duration without error-correction	B
1.3	Two-condition code with elements of the same number and duration with error-correction	C
1.4	Four-condition code in which each condition represents a signal element (of one or more bits)	D
1.5	Multi-condition code in which each condition represents a signal element (of one or more bits)	E
1.6	Multi-condition code in which each condition or combination of conditions represents a character	F
1.7	Sound of broadcasting quality (mono)	G
1.8	Sound of broadcasting quality (stereo)	H
1.9	Sound of commercial quality (excluding categories K and L)	J
1.10	Sound of commercial quality with the use of frequency inversion or band-splitting	K
1.11	Sound of commercial quality with separate FM signals for level control	L
1.12	Monochrome television or facsimile	M
1.13	Colour television or facsimile	N
1.14	Combination of the above	W
1.15	Cases not otherwise covered	X

2. Fifth symbol—nature of multiplexing

2.1	None	N
2.2	Code-division multiplex (including bandwidth expansion techniques)	C
2.3	Frequency-division multiplex	F
2.4	Time-division multiplex	T
2.5	Combination of F and T	W
2.6	Other types of multiplexing	X

Examples

25 wpm Morse on a local net:	060HA1AAN
25 wpm Morse on a DXpedition:	100HA1AAN
Classic HF Baudot RTTY:	1K07F1BBN
SSB Phone:	2K85J3EJN
AM Phone:	5K70A3EJN
So-called FM Phone on VHF:	16K0G3EJN
1200 baud Packet on VHF:	16K0G2DCN
9600 baud Packet on VHF:	13K2F1DCN
GPS satellite navigation:	100KG7DCC
On/off keyed Hellschreiber:	050HV1CAN

THE NZART RADIOSCIENCE EDUCATION TRUST

What is the NZART Radioscience Education Trust?

The Trust is a fund from which money will be made available for charitable purposes and the objectives of the Trust are set out in a Deed of Trust. It is structured to operate as a Charitable Trust to maximize the benefits to the recipients. It is governed by three Trustees who are responsible for all aspects of the Trust's operation.

What are the Trust's objectives?

The objectives for which the Trust has been established are to apply the Trust's assets within New Zealand to promote and encourage education in radioscience, whether by payment of course fees for worthy candidates, the provision of prizes for excellence in educational activities, or otherwise as the Trustees think fit. Beneficiaries do not have to be members of NZART, nor will members receive preference.

How does the Trust work?

Currently the Trust provides prizes and awards for students offering a project or exhibit having a radioscience theme at local school Science and Technology Fairs. Organizing this activity involves NZART members at national and branch level throughout the country.

Where does NZART fit into this Trust?

The Deed of Trust specifically sets the Association aside from any involvement. In effect, the Trust will be transparent to the Association since the awards, their control, and the financial aspects of the Trust are totally under the control of the Trustees.

How will the Trust's finances grow?

The Trust operates from the income generated by the capital invested and the accrued interest is used to finance the awards and prizes, etc. Apart from the foundation donation, other significant capital has come from anonymous donors and surpluses from NZART conferences.

The Trustees welcome inquiries from any person or organization wishing to support the Trust by donation; replies will be treated in the strictest of confidence. The Trustees intend that the fund should grow at least in line with inflation to ensure benefits are not eroded.

New Zealand Association of Radio Transmitters Inc.
(PO Box 40-525, Upper Hutt 5415)

Radioscience Education Trust

Certificate of Merit

Awarded to .....

for achievement in Radioscience

Date .....

Signed on behalf of the Trust

.....

TALK around the WORLD
AMATEUR RADIO

NZART Radioscience Education Trust, PO Box 1733, Christchurch 8030

The Trust is recognized by the IRD as a "Charitable Trust". Briefly, this means that the Trust's income is not taxable and that in most cases donations to the Trust are tax-deductible.

Who are the Trustees and how are they appointed?

The three Trustees are all NZART members of long standing who hold the Association, its aims and objectives at the highest level. The inaugural Trustees are:

Terry Carrell ZL3QL, Christchurch. Life Member, Past-President, and ex-IARU Liaison Officer.

Peter Norden ZL2SJ, Featherston. Presient NZART.

John Walker ZL3IB. Christchurch. Editor *Break-In*.

The President of NZART, in consultation with the Vice-President, will appoint the Trustees as and when necessary.

The Science and Technology Fair organization

Nationally, the Science and Technology Fair scheme is sponsored by a number of organizations and, at present, there are 22 regional Science and Technology Fairs whose winners go on to take part in the National Science and Technology Fair. More information on these may be found on the Royal Society's web page www.rsnz.govt.nz/.

What are the prizes for?

The aims of the Trust are broad. The Trustees wish to support and encourage all and any aspect of radioscience. Relevance to amateur radio is a plus but not a prerequisite.

For the time being the Trust sponsors a prize to the value of $100 at each of the local area Science and Technology Fairs. Local NZART branches are asked to provide judges and other forms of support for these events. The Trust also provides a "Certificate of Merit" (for the prize winner) and a "Certificate of Commendation" (one or more of which may be awarded at the judges' discretion). Prizes will only be awarded where the judges consider there is a worthy recipient.

It is hoped that in the long term this two way exchange will generate interest in radio and electronics leading to more young radio amateurs. At the same time it provides branches with a means of local involvement and recruitment.

Looking ahead: let's talk about the Trusts, bequests and your will

By supporting the Trust you can partake in the development of new and exciting communications technology that is rapidly adding more options for a career, education, international understanding, and a wonderful pastime. You can help preserve this experience and pass it on to a new generation of New Zealanders by contributing to the Trust. You can be part of the future now!

It's quite natural to wonder about the future. Potential contributors may ask in what way they can support the NZART Education Trust throughout a lifetime or beyond. You may have had in your amateur radio activity an experience that has enriched your life, or seen or heard of something special that you wish to help perpetuate. Perhaps the Amateur Service, with its many facets of activity, and public service, has made a lasting difference to your life, education and career.

A practical way to ensure future interest in Amateur Radio is by making a bequest to the Trust. The legally binding obligations on the Trust, as set out in its Deed of Trust, ensure that your donation will be preserved and used exclusively for the purpose intended, the promotion and encouragement of education in radioscience. We recommend strongly that a solicitor provide assistance when you are considering a bequest. Your solicitor can assist you to tailor your will to your precise needs.

The NZART Radioscience Trust is a Charitable Trust founded by the NZART Inc to promote and encourage education in radiosicence. The Trust's income is tax free and donations to the Trust are tax deductile to the extent permitted by the Income Tax Act 1994.

Correspondence regarding the Trust and contributions should be addressed to: The Trustees, NZART Radioscience Education Trust, C/- PO Box 1733, Christchurch.

Information about the Trust is also available on the NZART web site www.nzart.org.nz.

compiled by
MURRAY GREENMAN
ZL1BPU

Many amateurs now have a computer that they use for their hobby, whether for general uses such as word-processing, electronic design, Packet radio, HF operating, log keeping or a host of other tasks. With a modem in the computer connected to a normal telephone line, and an Internet account, you can access e-mail, mailing lists and news services, and the "world wide web", widely used for research, information and sourcing software.

Some say that the Internet may cause the demise of Amateur Radio as we know it, and it has already had a marked impact on Packet radio systems. However, most Internet-using hams recognize that it is one of the most powerful tools available, and use the Internet to enhance their hobby, rather than supplant it. What better way to look up the address of a station you want to QSL, to look for modifications or improvements for your rig, a design for an antenna, connection details for some piece of equipment, or to promote your next Club meeting or Field Day!

The Internet is a highly diverse network of interconnected computers, rather like a very fast Packet radio network on a grand scale, and indeed uses a similar protocol, called (surprise!) the "internet protocol" or IP. Some of these computers have specialized purposes, such as providers of information ("servers" or "hosts"0, traffic directors ("gateways" and "routers"), while others, like yours, are information users ("clients"). Most of the systems are active all the time, although the interconnections between them are dynamic, and exist only while the connection is in use. They can be interconnected via telephone lines, microwave links, fibre optics and satellite links.

Most home users connect up only when necessary, using a regular telephone line. Your point of connection is a computer (operated by your Internet Service Provider or "ISP"), connected to you via the telephone exchange and to the Internet via some type of fast link. ISPs charge for their services in different ways—some are flat rate, others charge by the minute or the megabyte. The type of account which will best suit you will depend on your usage. For example, if you intend to do a lot of research (or "surfing" for pleasure), choose a flat rate account. If you need only e-mail, choose a charge by the minute account. Commercial sites with permanent connection to the Internet are generally charged by the amount of data transferred.

There are many services provided by an Internet connection. It is well beyond the scope of this introduction to provide a list of Amateur Radio services, and besides, not only do these services (called "links") change almost daily, they are best discovered when you need them by using a search tool. Some of the more useful links are listed later.

WWW

Perhaps the most widely publicized Internet service is the "World Wide Web". In reality, the WWW is just one part of the Internet, a vast collection of information servers which understand a particular set of protocols, supplying data in a format recognized by PC "Internet browser programs" such as Internet Explorer or Netscape. Web documents, called "pages" are written in a "hypertext markup language" or HTML, with pictures, sounds and other items linked to them. The hypertext concept allows pages and other files to be interconnected or linked anywhere in the world.

The WWW is widely used as a research tool and information provider. For example, check out a call-sign using the QRZ database,[1] or current ionospheric propagation data from Australia.[2]

One of the most powerful tools provided by the WWW is the "search engine", a special web site that has the task of finding out all about other sites. Most have a huge database of references, which can be maintained automatically, manually, or updated from submissions provided to them,[3] and will give you a list of references almost instantly. Another type will accept a request to do your research for you, and post back the results by e-mail! The trick with search engines is to specify exactly what you are looking for—otherwise you have to wade through too many references to find exactly what you want.

Some amateurs also provide a WWW web site as a service to others. Many of these have a highly professional appearance. Creating a simple web site is really easy to do. You need to know a little about HTML, have an ISP to "host" your data, and know how to load the data.

E-mail

Electronic mail, or "e-mail" is perhaps the most useful and widely used Internet service for amateur radio. It is also incredibly cheap and fast. You can keep in touch with friends, set skeds, send pictures, software or even sounds or picture samples from your DX contacts! Some experimental contacts have even been co-ordinated in near real time via e-mail.

E-mail is especially useful if you and your friends are involved in some particular development project—maybe a new antenna design, or a propagation experiment. Most e-mail systems can be fully automatic, and your mail simply arrives on your PC to be read and replied to at your leisure. You can send file attachments—even pictures, sounds and programs along with the e-mail. Most mail systems now accept mail in HTML format, so you can also used coloured backgrounds and text, pictures, letterheads and special fonts.

There are two further variants to e-mail. WWW e-mail is a way to have a mail service without having an e-mail service provider. There are many WWW mail providers, and some are free.[4] WWW mail can be read from anywhere in the world, and can be anonymous, but is also inconvenient, since it does require a WWW connection and must be manually read. A WWW e-mail address is no different to a normal address, but is "served" to the user in a different way.

The other variant is the e-mail "reflector", or list. This is a computer system on the Internet which receives e-mails, and then sends them to every e-mail address on the requesting list. This is a very powerful way to keep Amateurs with similar interests in touch with each other. To send an e-mail to everyone with the same interests, you just send one e-mail to the list address. Lost address problems are few, because the subscribers make sure that their details are current.

There is a reflector for PSK31, another for Hellschreiber, one for MT63, one for HF digital mode developers, and a host of DX spotting reflectors.[5] Many of these reflectors are provided as a free service, and you can easily start your own, for example, using Onelist.[6]

E-mail is generally read (or "downloaded") over the Internet using an e-mail tool such as Eudora or Outlook Express. It is possible to access e-mail via a direct dial-up using Telnet, or even via the Packet radio network, if forwarding is set up. Most e-mail providers allow you to read mail from anywhere in the world, wherever you have access to the internet, via a friend's account or perhaps a "cyber café".

News

The Internet news service is really like a massive public bulletin board. There are many thousand different topics available (called "newsgroups"), and you can read or post messages to these in a similar way to e-mail. Just remember though that newsgroups are highly public—anyone in the world can and will post to them, so you are likely to see some information you would rather not see, and if you send mail to a newsgroup you are at risk of receiving unwanted mail.

Newsgroups are very powerful for advertising and promotion, since they are so public. However, they are not widely understood, and are open to abuse. An excellent example of a newsgroup that works well is the New Zealand buy/sell/swap newsgroup.[7] Newsgroup topic names have a hierachy—look for recreational topics like rec.radio.antenna, rec.radio.digital or rec.radio.space.

Most e-mail programs will also handle newsgroups, and will allow you to search for and join the groups which interest you.

FTP

File Transfer Protocol is the mechanism most used to send files across the Internet safely. You won't need to know how it works, only that your web browser or file manager probably supports the protocol, so you can download programs. FTP is also used to move files to a server when you set up your own Web site.

Private and commercial sites require a password for FTP access. Sites such as ftp://ftp.tapr.org/tapr are designed for "anonymous FTP", so anyone can make file transfers.

Web servers are like any other computer and, in theory, you can also access any web file using FTP. In reality, however, many of the commercial sites prohibit anonymous FTP access. Using FTP on web sites is a good way to explore a site, find data that is not mentioned on the web pages, or to diagnose a linking problem.

Telnet

Telnet provides a basic method of connecting one computer to another rather like connecting two terminals together. No error correction process is used. Telnet forms the basis for all Internet login processes and can be used to run commands on the remote computer.

Internet addresses

Computers on the internet have numerical addresses, rather like a large telephone number. Because these change from time to time, and are difficult to remember, a text address form is used, which is translated to numbers when required by a "name server". The text address is called a "Unified Resource Locator" or URL, of the form "type://address.organisation.country/director/filename", so the URL points directly to a precise file or resource on a distant server. The country abbreviation for New Zealand is "nz", for Australia is "au", and for Canada is "ca" and so on—since the Internet started in the USA, the US has no country abbreviation.

For example, http://www.qsl.net/zl1bpu/index/html is the URL for my web site. "http" means that the protocol to use is "hypertext transfer protocol", so the resource is an HTML page, the page is at the popular web site QSL NET, (the country is the US by default), and the file index.html is in the server directory "zl1bpu". This is a real address—try it!

URLs are case sensitive—it is important to maintain the exact upper and lower case letters, or the data you want will not be found. Often you will find the page you want can't be found anyway—its address may have changed, or it may be temporarily unavailable.

E-mail addresses are of the form "name@address.country", and unlike URLs, are not case sensitive—although it is conventional to use lower case. For example, the e-mail address as149@detroit.freenet.org, is based in the United States, although it can be read from anywhere.

Chat

A chat server is a device designed to accept short messages from users and send them to other users almost in real time. In effect it is like running a live Packet radio contact, where you chat to other users one line of text at a time. Chat servers are divided into "rooms" or subjects, which you can enter and leave. When you enter or leave, your movements are reported to the other users. There are many chat rooms dedicated to amateur radio subjects, and conventionally the users identify themselves by call-sign, so operation is very similar to Packet radio contact. Some of the Amateur Radio chat rooms do in fact connect live to the Amateur Packet radio network in different parts of the world.

Some of the more sophisticated chat servers allow real time data transfer direct to an individual client, rather than a chat room. ICQ is such a system, and is popular for co-ordination of HF propagation experiments. Internet Phone servers can do the same with Voice and image data.

Your own Web Site

There are more useless and self-serving web sites than you could ever imagine, but there will always be room for a new Amateur Radio web site that serves a useful purpose. To set up a web site, you need a web service provider to host your data, some means of creating and editing HTML files and image files, an FTP tool to send the files to the host, and an Internet account for access.

If your web site is dedicated to Amateur Radio, you can make your own web site absolutely free with QSL.NET.[8] They offer as much space as you need, with no strings attached and the service is very good. There are many other free sites, but they usually involve attached advertisements one way or another.

Although you do not need to learn HTML to write web pages, it is very useful to know a little about the process, as your site will work best and be served to users faster if the pages are small and efficient. Many modern word processors will save in HTML format, but the files will be large and slow loading. It is quite practical to write effective HTML with a simple text editor such as "Notepad". Use a beginners' HTML guide from the Internet to learn how to write pages, link them together, and embed pictures, and so on.

Your new web site can be completely tested on your own computer, and once you are satisfied with it, the whole site, or one file at a time, can be transferred to your web host by FTP. Then—most important step—test it all again over the Internet, before you make the web site public. There are several ways to publicize your new web site—by e-mail, of course, via newsgroups, other web sites, or best of all, but telling the major search tools[3] about it.

Web sites need to be maintained—it is amazing how quickly the data becomes outdated—and if you use links to other sites, these especially need to be tested regularly, as they are sure to change. Your reputation will suffer if your site is out of date, does not work properly, or is visually "tacky".

Amateur Radio sites

It is not possible to list even more than a few of the Amateur Radio Internet sites—there are so many! There are general purpose sites,[9] associations like the ARRL and NZART,[10] sites with satellite tracking data,[11] vintage radio,[12] software sites[13] and so many more. Use one of the general purpose sites with plenty of links to locate what you need. You can even listen to HF and VHF radios and tune them up and down the band via the Internet![14]

References

1. www.qrz.com.
2. ionosphere.kel.com.au.
3. www.excite.com, www.altavista.com, www.yahoo.com.
4. www.hotmail.com, www.juno.com.
5. users.southeast.net/~kd4ujk/ficada2.htm.
6. www.onelist.com.
7. nz.wanted.
8. www.qsl.net.
9. www.eham.net, www.ac6v.com, www.hamradio-online.com.
10. www.arrl.org, www.nzart.org.nz, www.tapr.org, www.amsat.org.
11. acsprod1.acs.ncsu.edu/scripts/HamRadio/sattrack.
12. www.vistech.net/users/w1fji/museum.html, www.halcyon.com/johnj/radios.
13. aintel.bi.ehu.es/psk31.html, space.tin.it/computer/aporcino, www.hffax.de.
14. www.ralabs.com/webradio.

SPAM—Society for the Preservation of Amplitude Modulation

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Meetings

The Annual General Meeting is held annually at Queen's Birthday Weekend in conjunction with NZART Conference.

General

In order to keep expenses to a minimum, membership lists, financial statements, information, etc, sought by members will be sent on receipt of a stamped and addressed envelope. The information sought will be sent as soon as possible.

Aims and Objects

To preserve Amplitude Modulation as a means of Amateur Radio communication.

Nets

There are nets operating at present on AM on 3.850 MHz at the following times:

Monday to Saturday at 0900 hours.

Monday to Friday at 1900 hours (Petone based).

Wednesday evenings at 2030 hours (Taranaki based).

Friday evenings at 2000 hours (Northern area based).

A regular monthly net is held on SSB (LSB) on 3.593 MHz at 2000 hours on the first evening of each month—so the day of the week will change—to discuss AM matters including who needs what and who can possibly provide the same—Members are encouraged to participate.

A national database of information and parts' sources, and wants, has been set up so that those seeking can be joined up with those willing to provide. All enquiries or offers of assistance should be directed to me on the air or at the above address.

Subscription

$5.00 payable once only on joining. A collection will be taken up each year at the Annual General Meeting, and donations will always be acceptable.

Bulletins

Bulletins are sent out regularly by e-mail to those who have provided their e-mail addresses. These are sent by the "blind copy" method so individuals' addresses are not circulated to everyone. The bulletins include news, requests for information, parts and equipment available, parts or equipment wanted, plus anything else that might be of interest to members.

WARO New Zealand Women Amateur Radio Operators — Call-sign ZL6YL

Object

To promote and encourage interest in Amateur Radio amongst women.

WARO was formed in 1961–62 by a small but keen group of YL transmitters and has steadily grown both in numbers and enthusiasm ever since.

For the annual subscription (currently $15.00 for New Zealand members) members receive four quarterly Bulletins containing items of interest to operators and friends, with special attention to YL activities.

Associate members—YLs who do not have a transmitting licence are welcome, as are YLs from overseas, many of whom are sponsored by ZL members.

Friends of WARO—persons who support WARO may become Friends of WARO by making a donation of not less than the current subscription.

The Thelma Souper Memorial Contest is held annually in early April in honour of our founder. It is open to YLs and OMs and is held on the lower end of the 80 m band.

The WARO Achievement Award may be awarded annually to persons nominated by their peers for outstanding achievements in any aspect of Amateur Radio. Nominations close at the end of March each year and the Award is presented at the AGM in June. The form this takes is the Myrtle Earland Memorial Rosebowl in honour of New Zealand's first licensed YL.

WARO also operates several awards including the WARO Award and the Mountain Buttercup Award. For further details on these see the Awards section elsewhere in this Call Book.

Elected Officers

Patron

Pearl Neilson ZL2QY.

President

Bev Osborne ZL1OS.

Vice-President

Rosemary Boshier ZL1WRO.

Secretary

Rhondalin Houghton ZL1RBH.

Treasurer and Membership Applications

Sharon May ZL3AE.

Executive

Jeanne Gilchrist ZL4JG.
Jacqueline Goodenough ZL1JAQ.
Bev Gillman ZL3TCR

Award Manager

Lynnette McDonald ZL1LL.

Contests Manager

Bev Osborne ZL1OS.

Sponsorship Secretary

Celia Reed ZL1ALK.

Librarian

Joline Beale ZL1UJB.

Official Broadcast Co-ordinator

Cathy Purdie ZL2ADK.
Rosemary Boshier ZL1RO

***Break-In* Columnist**

Margaret McConnachie ZL3UD.

Bulletin Editor

No appointment.

YL Nets:

WARO VHF

Auckland: Sunday 7pm NZ time 146.900 (Bombay 690).

Canterbury: Tuesday 9pm NZ time 147.250 (Canterbury 725).

WARO HF

WARO: Mondays 8pm NZ time 3.695MHz ±.

WARO Executive: Second Sunday 0800 UTC 3.695MHz ±.

International

ALARA: Mondays 1030 UTC 3.580MHz ±.

YL "222": Mondays 0600 UTC 14.222 (Net Control June VK4SJ).

VE/VK/ZL: Fridays 0500 UTC 14.148MHz.

BYLARA: Wednesdays/Saturdays 1115z BST 7050/7090 ± QRM.

CLARA: Tuesdays 1700 UTC 14.120MHz (Alternate frequency 14.180MHz).

YLRL:

YL Open House—Wednesdays 1900 UTC 14.288MHz (one hour earlier daylight savings time).

Tangle Net—Thursdays 1800 UTC 14.298MHz.

European DX/YL: Thursdays 1700 UTC 14.242MHz ±. (Net Control Christine GM4YMM).

DX sponsorship

It is great to sponsor a YL from another YL organization—increases your awareness of other countries and their people. We have DX-sponsored members from all over the world and it does help to forge greater bonds between all of us. To sponsor a YL contact the Sponsorship Secretary for further information and contacts. It costs the value of a DX membership subscription and the chance to exchange news and views with each other.

YL Get-Togethers

These are held regularly throughout the country as well as the annual Get-Together at the time of our AGM in June. Consider going along to these affairs—they are a lot of fun.

WARO Bulletin/*Break-In* page

Copy is always required for these publications and any news/views of/by or from members are very welcome by the two persons concerned. Photographs are especially welcome—how about sending some in NOW.

Enquiries are always welcome from any YL for membership/fellowship in all of our activities. Feel free to contact any of the above-mentioned YLs or any other member of WARO. And always be on the lookout for ZL6YL—our own call-sign.

INTERNATIONAL MORSE PRESERVATION SOCIETY (FISTS)

The FISTS Club, (International Morse Preservation Society) is one where veteran operators help newcomers and less-experienced operators learn and improve CW proficiency. The membership has grown from 300 in its first year of operation to 4,500 members worldwide and is one amateur radio's fastest growing organisations.

The New Zealand Chapter was formed in 1998 with Ralph Sutton ZL2AOH as the VK/ZL representative, membership now stands at over 70.

FISTS supports the use of Morse code

The club is devoted exclusively to CW operators and CW operating. We have three straightforward goals:

- Further the use of CW
- Engender friendships among members
- Encourage newcomers to use CW

Brought together by a common love of Morse, FISTS members actively participate in a wide variety of amateur radio activities including nets, rag chewing, earning awards, QRP, contesting and of course "Elmering." All activities include both slow and higher speeds and emphasise courteous operating practices.

FISTS club membership

FISTS members are young, old, both OMs and YLs—they live all over the world including every State in the USA and all enjoy CW communications at widely varying proficiency levels.

FISTS is not tied to any commercial interests and has no paid employees. VK and ZL members receive the UK produced newsletter Key Note and a local supplement FISTS Down Under. All activities are funded from annual fees of $15.00 (spouses of existing members can join at no cost).

Requirements for membership of the FISTS Club are very simple. One simply has to like Morse code! You do not need to be a member of any other organisation and there is no minimum Morse proficiency requirement. You don't even have to be a licensed amateur.

FISTS QSL Bureaux

FISTS operate bureau in the USA, UK and New Zealand/Australia for the quick exchange of QSL cards between members. This is a no-cost service to members.

FISTS contests

FISTS conducts contests for members and others

FISTS awards

FISTS members participate between themselves in a popular award scheme that includes the following:

Century Award is for 100 FISTS contact points;

Platinum Award is for 100 Century Award contacts;

250 Century Award is for 250 Century Award holder contacts;

500 Century Award is for 500 Century Award holder contacts;

Silver Award is for 250 FISTS contact points;

Gold Award is for 500 FISTS contact points;

Diamond Award is for 1000 FISTS contact points;

Worked FISTS all US States—for exchange between FISTS members in QRP as well as QRO categories.

Membership and other inquiries to:

Ralph Sutton ZL2AOH
12c Herbert Gardens
186 The Terrace
Wellington 6001
Telephone: (04) 473-0847
Fax: (04) 473-0848
E-mail: ZL2AOH@ihug.co.nz
Web: www.fistsdownunder.morsekeys.com.

OLD TIMERS' CLUB (ZL)

The objects of the Old Timers' Club (ZL) are set out in our Constitution adopted in 1993. They are as follows:

(1) To recognize service to Amateur Radio;

(2) To revive and maintain interests and good fellowship among the older members in the common cause.

(3) To offer advice and encouragement to newer Amateurs.

The Club is duly affiliated to the New Zealand Association of Radio Transmitters (Inc).

Patron: Harry Martin ZL1PX

Grand Old Man: "Bing" Crosby ZL3CC

Treasurer: Brian Lawn ZL2AJS

Secretary: Roy Symon ZL2KH

Postal address: OTC, New Plymouth Branch NZART, C/- TEMO, 45 Robe Street, New Plymouth

Telephone: (06) 758-2156

Fax: (06) 758-2154

E-mail: zl2kh@nzart.org or zl2ajs@nzart.org.nz

Brian or Roy can also be contacted at 1000 hours most Sunday mornings during the OTC Net on 7.058 MHz.

Any material for the *Break-In* page should be sent to: ZL2KH, PO Box 6082, Moturoa, New Plymouth.

Net Controllers:
Roy Symon ZL2KH
Don Dalrymple ZL3SZ
Brian Lawn ZL2AJS
Reg Truman ZL1UZ
80 m AM Phone:
Doug Alexander ZL2AWF

Districts Representative Committee:
H. Martin ZL1PX, G. Rouse ZL1AQ, D. Dalrymple ZL3SZ, D. Bradfield ZL1DAQ, C. Cumming ZL4OE.

OTC Scribe: Roy Symon ZL2KH.

A National Single Side-band Net is held every Sunday morning at 9.30 am. The call-sign is ZL6OTC. The frequency is 7.058 MHz but if propagation is poor on 40 m, the net may QSY to 3.865 MHz. An AM Net is also run on Sunday morning at 10.30 am on 3.850 MHz. The Secretary gives the Club News at 10.00 am on the SSB Net.

Full membership is available to any holder of a ZL call-sign who has held an amateur licence for the last 25 years or more and is still an active amateur.

In addition, Associate Membership is available to any ZL amateur who has attained the age of 60 years (and over) and has been an active amateur for 10 or more years. Voting privileges are not available to Associate Members.

Application Forms for membership may be obtained from a District Representative or from the National Secretary. A joining fee of $10.00 is payable on application.

Evidence of eligibility which is to be submitted shall include, full name, present call-sign, original call, operator's certificate number and date of original licence. All applications for membership shall be proposed and seconded by present OTC members.

On acceptance a Certificate is issued to all Full and Associate Members, and they will be listed in the *Blue Book*. In addition further handsome certificates are available on request to those who attain 50, 60 and 70 years of Amateur Service.

All members of OTC are eligible to wear the Peacock Blue NZART Badge with call-sign so long as they are financial members of NZART. This badge is available from NZART HQ at the current price of the similar black membership badges.

Articles relating to all aspects of OTC or of vintage radio for publication in the OTC section of *Break-In* are welcomed by, and should be addressed to our Scribe, Roy Symon ZL2KH, PO Box 6082, Moturoa, New Plymouth.

NZART AFFILIATES

A document in the NZART Councillors' Handbook, the NZART Policy 1998, reads:

31 General

31.1 The following are NZART affiliates:

31.1.1 Old TImers' Club (OTC).

31.1.2 Women's Amateur Radio Organization (WARO).

31.1.3 Cook Islands Amateur Radio Club

31.1.4 Kapiti Coast Museum.

31.1.5 Canterbury Amateur Radio Development Society (CARDS).

31.1.6 Suburban Amateur Radio Club (SARC).

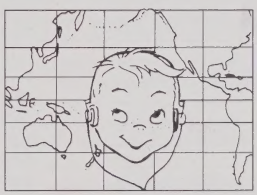
JAMBOREE ON THE AIR October 19 and 20 2002

by JIM PARNELL ZL2APE

JOTA is an annual event in which about 500,000 Scouts and Guides all over the world make contact with each other by means of amateur radio. It is a real Jamboree during which Scouting and Guiding experiences are exchanged and ideas are shared, thus enhancing worldwide Scouting and Guiding. JOTA has been held annually since 1958 and Scouts and Guides are encouraged each year to invite radio amateurs to help them take part.

There are great potential benefits to amateur radio by encouraging young people to take part in JOTA as it introduces them to the hobby that you, as an amateur, enjoy. So it is in the interests of New Zealand amateurs to anticipate invitations by Scouts and Guides and approach their leaders, offering their services and equipment.

The easiest way for Scouts and Guides to take part in JOTA is for them to visit an amateur station sometime during the JOTA period. At the station, the amateur establishes contact with another amateur station and then hands over the microphone to the Scouts and/or Guides. Satellites, Packet, SSTV and other modes of communication (including e-mail) are now used for JOTA as well as the normal modes using HF and VHF/UHF.



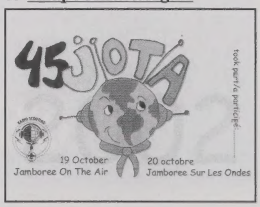
Many stations are set up at Scout or Guide Headquarters, or at some local "interesting" or appropriate venue. Other JOTA stations are set up at camps, the radio activities being incorporated into the camping programme.

JOTA is now run concurrently with the Jamboree on the Internet (JOTI) and JOTA and JOTI stations are often combined on the same site. There is much information about JOTA and JOTI on the New Zealand Scouting web page: www.scouts.org.nz/ and on the world Scout JOTA web page: www.scout.org/jota.

JOTA and JOTI are both co-ordinated by the World Scout Bureau and are organized by National organizers in each Scouting and Guiding country.

JOTA is *always* held during the 48 hours (local time) of the third full weekend in October. *In the year 2002, JOTA will be held on October 19 and 20 (which is the weekend* ***before*** *Labour Weekend).*

Jim Parnell ZL2APE
National Organizer for JOTA in New Zealand
Call Book **address or e-mail to zl2ape@nzart.org.nz**



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NZ Radio For The Print Disabled (Inc)

PO Box 360, Levin
Email: nzrpd@xtra.co.nz Web site: www.radioreading.org

We read whole information as it is printed from:

- Newspapers
- Magazines
- Periodicals

This is a non-commercial, voluntary, Radio Station, established and operated by **New Zealand Radio For the Print Disabled (Inc).** The station commenced broadcasting on May 9 1987 and is funded from: donations, subscriptions, bequests and limited sponsorship along with assistance from **New Zealand On Air. Listeners' Comments and Reception Reports are particularly valued by the Station and are acknowledged with a QSL card.**

An example of Amateur Radio serving the wider Community

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Established 1988

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Phone (03) 366-8628

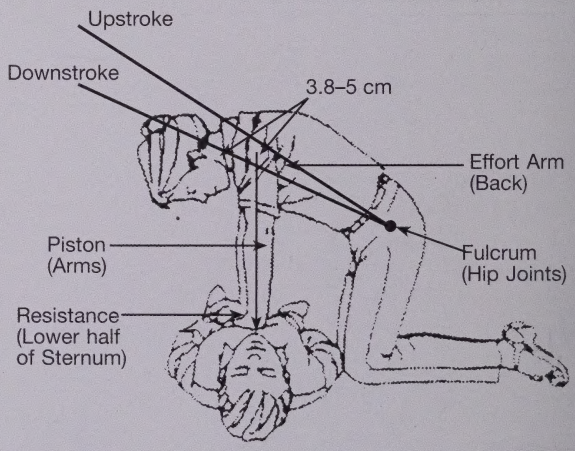
Single Rescuer C.P.R.

Initial Approach
- Ensure own safety
- Assess consciousness ("are you okay?")
- Call/yell for help
- Position victim

Airway
- Clear airway (remove objects/fluids from mouth
- Open airway: head tilt–chin lift

Breathing
- Check breathing—10 seconds—LOOK, LISTEN, FEEL
- Rescue breathing: Give two effective breaths (up to five attempts)

Circulation
- Check for signs of circulation (10 seconds only)
- Rate 100
- Ratio 15/2
- After 15 compressions give two effective breaths



Checks
- Reassess for signs of circulation every three minutes

Continue C.P.R. Until:
- The victim's own pulse and breathing have been restored
- A doctor or other health professional takes over
- You are exhausted

DO NOT GIVE UP

Even when things look hopeless, until trained help arrives